

NMST432
Computational Environment for Statistical Data Analysis
Sample Report

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1 Sample table

Table 1: Analysis of **score in mathematics** by **family composition**.

| Score in mathematics by Family composition | | | | | |
|--|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 54.05 (0.21) | 9.72 | 54.87 | 47.35 – 61.86 | 2108 |
| Mother and father | 54.89 (0.24) | 9.57 | 55.97 | 48.37 – 62.74 | 1600 |
| Other | 51.41 (0.43) | 9.73 | 52.45 | 43.70 – 58.89 | 508 |
| Difference in means: 3.48 (2.51, 4.45) [†] , P: <0.001 [‡] | | | | | |

[†] 95% confidence interval

[‡] Welch two-sample t-test

2 Results

Results for math score are seen in Table 2. For science, see Table 3. If you are interested in social science, go to Table 4. Finally, reading score is analyzed in Table 5.

Table 2: Analysis of **Math Score**.

| Math score by Gender | | | | | |
|--|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ - Q ₃ | N |
| All | 53.86 (0.20) | 9.79 | 54.61 | 46.97 - 61.76 | 2311 |
| Male | 54.25 (0.30) | 9.97 | 55.37 | 47.03 - 62.31 | 1139 |
| Female | 53.47 (0.28) | 9.60 | 54.11 | 46.91 - 61.19 | 1172 |
| Difference in means: 0.78 (-0.01, 1.58) [†] , P: 0.054 [‡] | | | | | |

[†] 95% confidence interval [‡] Welch two-sample t-test

| Math score by Family composition | | | | | |
|---|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ - Q ₃ | N |
| All | 54.05 (0.21) | 9.72 | 54.87 | 47.35 - 61.86 | 2108 |
| Mother and father | 54.89 (0.24) | 9.57 | 55.97 | 48.37 - 62.74 | 1600 |
| Other | 51.41 (0.43) | 9.73 | 52.45 | 43.70 - 58.89 | 508 |
| Difference in means: 3.48 (2.51, 4.45) [†] , P: <0.001 [‡] | | | | | |

[†] 95% confidence interval [‡] Welch two-sample t-test

| Math score by Math enrollment past 2 years | | | | | |
|--|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ - Q ₃ | N |
| All | 54.19 (0.20) | 9.66 | 55.15 | 47.59 - 61.90 | 2249 |
| Yes | 54.72 (0.20) | 9.42 | 55.80 | 48.36 - 62.20 | 2122 |
| No | 45.43 (0.83) | 9.33 | 42.98 | 37.88 - 52.95 | 127 |
| Difference in means: 9.29 (7.60, 10.97) [†] , P: <0.001 [‡] | | | | | |

[†] 95% confidence interval [‡] Welch two-sample t-test

| Math score by Arrested | | | | | |
|---|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ - Q ₃ | N |
| All | 54.19 (0.20) | 9.67 | 55.16 | 47.56 - 61.92 | 2246 |
| Never | 54.35 (0.21) | 9.62 | 55.31 | 47.80 - 62.08 | 2187 |
| Ever | 48.27 (1.29) | 9.89 | 48.87 | 39.11 - 56.74 | 59 |
| Difference in means: 6.09 (3.48, 8.69) [†] , P: <0.001 [‡] | | | | | |

[†] 95% confidence interval [‡] Welch two-sample t-test

Table 3: Analysis of **Science Score**.

| Science score by Gender | | | | | |
|---|--------------|-----------|--------------------------------------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.51 (0.21) | 9.82 | 54.53 | 46.00 – 61.74 | 2294 |
| Male | 54.82 (0.30) | 9.93 | 56.22 | 47.72 – 63.36 | 1133 |
| Female | 52.23 (0.28) | 9.54 | 53.15 | 44.86 – 59.95 | 1161 |
| Difference in means: 2.59 (1.79, 3.39)[†] , P: <0.001[‡] | | | | | |
| [†] 95% confidence interval | | | [‡] Welch two-sample t-test | | |

| Science score by Family composition | | | | | |
|---|--------------|-----------|--------------------------------------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.88 (0.21) | 9.63 | 54.89 | 46.59 – 61.90 | 2095 |
| Mother and father | 54.55 (0.24) | 9.46 | 55.75 | 47.62 – 62.37 | 1593 |
| Other | 51.74 (0.44) | 9.88 | 51.92 | 44.29 – 60.15 | 502 |
| Difference in means: 2.81 (1.83, 3.79)[†] , P: <0.001[‡] | | | | | |
| [†] 95% confidence interval | | | [‡] Welch two-sample t-test | | |

| Science score by Math enrollment past 2 years | | | | | |
|---|--------------|-----------|--------------------------------------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.77 (0.21) | 9.75 | 54.85 | 46.39 – 61.90 | 2233 |
| Yes | 54.14 (0.21) | 9.66 | 55.39 | 47.02 – 62.17 | 2108 |
| No | 47.53 (0.81) | 9.01 | 47.09 | 40.59 – 53.66 | 125 |
| Difference in means: 6.61 (4.96, 8.26)[†] , P: <0.001[‡] | | | | | |
| [†] 95% confidence interval | | | [‡] Welch two-sample t-test | | |

| Science score by Arrested | | | | | |
|---|--------------|-----------|--------------------------------------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.78 (0.21) | 9.75 | 54.87 | 46.40 – 61.90 | 2230 |
| Never | 53.93 (0.21) | 9.64 | 54.95 | 46.72 – 61.91 | 2172 |
| Ever | 48.01 (1.57) | 11.95 | 45.76 | 37.97 – 58.72 | 58 |
| Difference in means: 5.92 (2.75, 9.09)[†] , P: <0.001[‡] | | | | | |
| [†] 95% confidence interval | | | [‡] Welch two-sample t-test | | |

Table 4: Analysis of **Social Science Score**.

| Social science score by Gender | | | | | |
|---|--------------|-----------|--------------------------------------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.24 (0.20) | 9.52 | 53.85 | 45.73 – 61.30 | 2275 |
| Male | 53.99 (0.29) | 9.78 | 55.15 | 46.19 – 62.11 | 1125 |
| Female | 52.50 (0.27) | 9.19 | 52.52 | 45.30 – 60.36 | 1150 |
| Difference in means: 1.49 (0.71, 2.28)[†] , P: <0.001[‡] | | | | | |
| [†] 95% confidence interval | | | [‡] Welch two-sample t-test | | |

| Social science score by Family composition | | | | | |
|---|--------------|-----------|--------------------------------------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.51 (0.21) | 9.47 | 54.40 | 46.03 – 61.48 | 2081 |
| Mother and father | 54.25 (0.24) | 9.36 | 55.28 | 46.91 – 61.95 | 1584 |
| Other | 51.15 (0.42) | 9.42 | 51.33 | 44.31 – 58.73 | 497 |
| Difference in means: 3.10 (2.15, 4.05)[†] , P: <0.001[‡] | | | | | |
| [†] 95% confidence interval | | | [‡] Welch two-sample t-test | | |

| Social science score by Math enrollment past 2 years | | | | | |
|---|--------------|-----------|--------------------------------------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.52 (0.20) | 9.43 | 54.29 | 46.06 – 61.44 | 2216 |
| Yes | 53.84 (0.20) | 9.34 | 54.83 | 46.44 – 61.60 | 2094 |
| No | 48.10 (0.85) | 9.37 | 46.54 | 41.46 – 54.91 | 122 |
| Difference in means: 5.74 (4.02, 7.47)[†] , P: <0.001[‡] | | | | | |
| [†] 95% confidence interval | | | [‡] Welch two-sample t-test | | |

| Social science score by Arrested | | | | | |
|---|--------------|-----------|--------------------------------------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.52 (0.20) | 9.44 | 54.27 | 46.06 – 61.45 | 2213 |
| Never | 53.68 (0.20) | 9.39 | 54.53 | 46.20 – 61.55 | 2155 |
| Ever | 47.61 (1.24) | 9.41 | 47.42 | 41.21 – 55.07 | 58 |
| Difference in means: 6.07 (3.57, 8.58)[†] , P: <0.001[‡] | | | | | |
| [†] 95% confidence interval | | | [‡] Welch two-sample t-test | | |

Table 5: Analysis of **Reading Score**.

| Reading score by Gender | | | | | |
|--|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.06 (0.20) | 9.69 | 54.47 | 45.80 – 60.98 | 2306 |
| Male | 51.77 (0.30) | 10.12 | 53.11 | 43.76 – 60.23 | 1137 |
| Female | 54.31 (0.27) | 9.08 | 55.81 | 48.16 – 61.76 | 1169 |
| Difference in means: –2.54 (–3.33, –1.76)[†] , P: <0.001[‡] | | | | | |

[†] 95% confidence interval [‡] Welch two-sample t-test

| Reading score by Family composition | | | | | |
|---|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.38 (0.21) | 9.53 | 54.86 | 46.39 – 61.09 | 2107 |
| Mother and father | 53.85 (0.24) | 9.56 | 55.54 | 47.03 – 61.82 | 1600 |
| Other | 51.92 (0.41) | 9.30 | 53.40 | 45.16 – 59.16 | 507 |
| Difference in means: 1.93 (0.99, 2.87)[†] , P: <0.001[‡] | | | | | |

[†] 95% confidence interval [‡] Welch two-sample t-test

| Reading score by Math enrollment past 2 years | | | | | |
|---|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.30 (0.20) | 9.62 | 54.78 | 46.31 – 61.11 | 2244 |
| Yes | 53.68 (0.21) | 9.49 | 55.22 | 46.79 – 61.41 | 2117 |
| No | 46.90 (0.84) | 9.49 | 47.06 | 39.45 – 53.14 | 127 |
| Difference in means: 6.79 (5.07, 8.50)[†] , P: <0.001[‡] | | | | | |

[†] 95% confidence interval [‡] Welch two-sample t-test

| Reading score by Arrested | | | | | |
|---|--------------|-----------|--------|---------------------------------|------|
| Group | Mean (S.E.) | Std. Dev. | Median | Q ₁ – Q ₃ | N |
| All | 53.31 (0.20) | 9.61 | 54.81 | 46.32 – 61.14 | 2241 |
| Never | 53.50 (0.20) | 9.53 | 54.95 | 46.46 – 61.22 | 2182 |
| Ever | 46.49 (1.31) | 10.09 | 47.06 | 36.50 – 52.50 | 59 |
| Difference in means: 7.01 (4.35, 9.66)[†] , P: <0.001[‡] | | | | | |

[†] 95% confidence interval [‡] Welch two-sample t-test