Excel Inferential Statistics

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DA 380 - Programming for Data Analytics

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1/29/2026

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Excel Inferential Statistics Practice Using BRFSS

First, an independent-samples t-test was conducted to compare average general health between people who exercise and people who don't. People who did not exercise ($\bar{x} \approx 3.11$, $s \approx 1.08$), on average, had a higher score than people who did exercise ($\bar{x} \approx 2.47$, $s \approx 0.94$). This difference was statistically significant, $t(752) \approx 8.99$, $p < 0.01$. These results suggest that the general health differs between people who exercise and people who do not.

Next, a one-way analysis of variance (ANOVA) was conducted to examine differences in mean general health across 11 groups defined by annual household income. Mean and standard deviation of general health values for each group are approximately shown in Table 1. The overall effect was statistically significant, $F(10, 1170) \approx 20$, $p < 0.01$. These results indicate that average general health differs among annual household income groups.

Then, a chi-squared test of independence was conducted to examine the association between exercise participation and median annual household income. The test indicated that the association was statistically significant, $\chi^2(1, N = 1180) = 80.26$, $p < 0.01$. Examination of the contingency table, shown in Table 2, showed that people who did not exercise tend to be below (or equal to) the median annual household income; however, more people tend to participate in exercise in general. This pattern suggests that people who tend to not participate in exercise are more likely to have a lower annual household income than those who do.

Finally, a multiple linear regression analysis was conducted to examine whether exercise participation and disability status were associated with BMI. The overall regression model was statistically significant, $F(2, 1344) \approx 17.97$, $p < 0.01$, and explained 2.6% of the variance in BMI ($R^2 \approx 0.026$). Exercise participation was a significant predictor of BMI ($\beta = 2.03$, $p < 0.01$), and disability status was significant ($\beta \approx 1.14$,

$p < 0.01$) as well. These results indicate that although there is not a strong linear relationship of exercise participation and disability status with BMI, the variables do have some relationship to BMI, and thus are associated with BMI.

Group	$\bar{x}$	s
1	3.58	1.24
2	3.24	1.1
3	3.12	1.18
4	3.31	1.14
5	3.01	1.03
6	2.69	1.01
7	2.61	1
8	2.44	0.91
9	2.18	0.86
10	2.17	0.84
11	2	0.75

Table 1

Mean and Standard Deviation of General Health by Annual Household Income

Median Annual Household Income	Participated in Exercise	Did not Participate in Exercise	Total
Less than or equal median household income	420	235	655
More than median household income	457	68	525
Total	877	303	1180

Table 2

Contingency Table for Median Annual Household Income and Exercise Participation