Statistical analysis - use spss

Science, Statistics

Statistical Analysis College: Hypothesis There is no statistically significant difference in fruit available and fruit availablein convenient portions between fuel stations based in Hertfrodshire and middlesex

For the first hypothesis, it is seen that 2 samples were used. The samples were obtained from different individuals not matched. In this case the required test here is independent sample t-test

Null hypothesis: H0: μ Hertfrodshire = μ middlesex

Alternative hypothesis: μ Hertfrodshire ≠ μ middlesex

μ is considered to be mean number of participants that were not matched

This is a 2 tailed hypothesis because of the phrase difference (Vogt, 2011).

The alpha level is 0. 05

The t value was calculated as illustrated in the next section

Table 1

Descriptive statistics for each group (middlesex and Hertfrodshire)

VAR00006

N

Mean

Std. Deviation

Std. Error Mean

VAR00005

1. 00

4

56. 0000

35. 07136

17. 53568

2. 00

4

44. 2500

21. 09305

10. 54652

Table 2

Independent Samples Test

Levenes Test for Equality of Variances

t-test for Equality of Means

F

Sig.

t

df

Sig. (2-tailed)

Mean Difference

Std. Error Difference

95% Confidence Interval of the Difference

Lower

Upper

VAR00005

Equal variances assumed

. 961

. 365

. 574

6

. 587

11. 75000

20. 46287

-38. 32085

61. 82085

Equal variances not assumed

. 574

4. 919

. 591

11. 75000

20. 46287

-41. 11239

64. 61239

If p ≤ α, then the null hypothesis should be rejected. For our case, 0. 587 is

seen to be not less or equal to 0. 05. Therefore, we are forced to reject the

null hypothesis. We can conclude that there is no statistically significant

difference in fruit available and fruit available in convenient portions

between fuel stations based in Hertfrodshire and middlesex

Hypothesis 2

There is no significant statistical difference in fruit available and fruit

available in convenient portions between total and total small fuel stations

The required test here is independent sample t-test

Null hypothesis: H0: μ Small = μ Large

Alternative hypothesis: μSmall ≠ μLarge

μ is considered to be mean number of participants that were not matched

The alpha level is 0. 05

The t value was calculated as illustrated in the next section

Table 3

Descriptive statistics for each group (Total small and Total large)

VAR00008

N

Mean

Std. Deviation

Std. Error Mean

VAR00007

1. 00

4

50. 0000

42. 39497

21. 19748

2. 00

4

48. 2500

28. 96406

14. 48203

Table 4

Independent Samples Test

Levenes Test for Equality of Variances

t-test for Equality of Means

F

Sig.

t

df

Sig. (2-tailed)

Mean Difference

Std. Error Difference

95% Confidence Interval of the Difference

Lower

Upper

VAR00007

Equal variances assumed

. 557

. 484

. 068

6

. 948

1. 75000

25. 67221

-61. 06764

64. 56764

Equal variances not assumed

. 068

5. 300

. 948

1. 75000

25. 67221

-63. 13620

66. 63620

If p ≤ α, then the null hypothesis should be rejected (Field, 2013). According to the results, 0. 948 is not less or equal to 0. 05. Therefore, we reject the null hypothesis at 0. 05 level of significant. We therefore conclude that there is no statistically significant difference in fruit available and fruit available in convenient portions between total and total small fuel stations

Hypothesis 3

There is no significant statistical difference in fruit and fruit available in convenient portions between fuel stations classified as mainstream and local and independent shops

Table 5

Descriptive statistics

N

Mean

Std. Deviation

Std. Error

95% Confidence Interval for Mean

Minimum

Maximum

Lower Bound

Upper Bound

mainstream

13. 00

1

. 0000

.

.

.

.

. 00

. 00

44. 00

1

78. 0000

.

.

.

.

78. 00

78. 00

69. 00

1

11. 0000

.

.

.

.

11. 00

11. 00

86. 00

1

86. 0000

.

.

.

.

86. 00

86. 00

Total

4

43. 7500

44. 51498

22. 25749

-27. 0833

114. 5833

. 00

86. 00

Local

13. 00

1

. 0000

.

.

.

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. 00

. 00

44. 00

1

33. 0000

.

.

.

.

33. 00

33. 00

69. 00

1

67. 0000

.

.

.

.

67. 00

67. 00

86. 00

1

100. 0000

.

.

.

.

100. 00

100. 00

Total

4

50. 0000

43. 11999

21. 55999

-18. 6135

118. 6135

. 00

100. 00

As indicated in the table above, for every dependent variable, the output

results indicate the minimum, sample size, standard deviation and

confidence interval for each of the independent variables

Table 6

ANOVA

Sum of Squares

df

Mean Square

F

Sig.

Mainstream

Between Groups

5944. 750

3

1981. 583

0. 00

0. 00

Within Groups

. 000

0

0.

Total

5944. 750

3

Local

Between Groups

5578. 000

3

1859. 333

0. 00

0. 00

Within Groups

. 000

0

0.

Total

5578. 000

3

The degree of freedom as indicated in the above table is observed to be 3 and it is between groups degree of freedom, 3 is observed to be degrees of freedom within groups. The F column shows F ratio of 0. 0. The p value is observed to be 0. 0. In regards to the decision of either accepting or rejecting the null hypothesis, we see that the p value is 0. 0 and this indicates that it is less than 0. 05. Therefore; we reject the null hypothesis and conclude that there is significant statistical difference in fruit and fruit available in convenient portions between fuel stations classified as mainstream and local and independent shops.

References

Field, A. (2013). Discovering statistics using SPSS (4th ed.). Thousand Oaks, CA: Sage.

Vogt, W. P. (2011). Dictionary of statistics and methodology: A nontechnical guide for the social sciences (3rd ed.). Thousand Oaks, CA: Sage.