

Nurse Student Statistics on Factor Analysis Produced Variables

- Question – For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response by age?

Answer – NO, there are no significant differences among the age categories for any of the three factor variables.

- Question – For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response by gender?

Answer – NO, there are no significant differences between genders for any of the three factor variables.

- Question – For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response by level of education?

Answer – NO, there are no significant differences among the levels of education for any of the three factor variables.

- Question: For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response based upon racer or ethnicity?

Answer – YES, for the factor variable knowledge there is a significant difference between groups 1 and 2 and between groups 1 and 7, and for the factor variable total cost there are significant differences between the pairs of groups 1 and 7, 3 and 7, and 4 and 7

- Question: For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response based experience working in a hospital?

Answer – YES, for the factor variable "participation" there is a significant difference between group 0 and group 2

STATISTICS

- Question – For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response by age?

```
. dunnstest iknowledge, by(iage)
```

```
Kruskal-Wallis equality-of-populations rank test
```

```
+-----+
| iage | Obs | Rank Sum |
+-----+
| 3 | 2 | 27.50 |
| 4 | 12 | 309.00 |
| 5 | 14 | 417.50 |
| 6 | 25 | 850.00 |
| 7 | 10 | 412.00 |
+-----+
```

```
chi-squared = 6.392 with 4 d.f.
probability = 0.1717
```

```
chi-squared with ties = 8.092 with 4 d.f.
probability = 0.0883
```

```
Dunn's Pairwise Comparison of iknowledge by iage
```

```

                                (No adjustment)
Col Mean-|
Row Mean |          3          4          5          6
-----|-----
    4 | -0.964413
      |      0.1674
    5 | -1.305010 -0.635265
      |      0.0959      0.2626
    6 | -1.691486 -1.441963 -0.768369
      |      0.0454      0.0747      0.2211
    7 | -2.175239 -2.214869 -1.686889 -1.181160
      |      0.0148      0.0134      0.0458      0.1188

```

```

alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2

```

```

.
. dunnstest iparticipate, by(iage)

Kruskal-Wallis equality-of-populations rank test

```

```

+-----+
| iage | Obs | Rank Sum |
+-----+
| 3 | 2 | 37.00 |
| 4 | 12 | 281.00 |
| 5 | 14 | 458.00 |
| 6 | 25 | 834.00 |
| 7 | 10 | 406.00 |
+-----+

```

```

chi-squared = 6.076 with 4 d.f.
probability = 0.1935

chi-squared with ties = 6.276 with 4 d.f.
probability = 0.1795

```

```

                                Dunn's Pairwise Comparison of iparticipate by iage
                                (No adjustment)
Col Mean-|
Row Mean |          3          4          5          6
-----|-----
    4 | -0.356920
      |      0.3606
    5 | -1.042565 -1.310385
      |      0.1486      0.0950
    6 | -1.121195 -1.569823 -0.107251
      |      0.1311      0.0582      0.4573
    7 | -1.581888 -2.225081 -1.055987 -1.072837
      |      0.0568      0.0130      0.1455      0.1417

```

```

alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2

```

```

.
. dunnstest itotcost, by(iage)

Warning: by() values are unlabeled, option nolabel implicit

```

```

Kruskal-Wallis equality-of-populations rank test

+-----+
| iage | Obs | Rank Sum |
+-----+
| 3 | 2 | 83.00 |
| 4 | 12 | 402.50 |
| 5 | 14 | 380.00 |
| 6 | 25 | 742.50 |
| 7 | 9 | 345.00 |
+-----+

```

```
chi-squared =      3.125 with 4 d.f.
probability =      0.5372

chi-squared with ties =      4.632 with 4 d.f.
probability =      0.3272
```

```
          Dunn's Pairwise Comparison of itotcost by iage
          (No adjustment)
Col Mean-|
Row Mean |          3          4          5          6
-----+-----
      4 |  0.703165
        |  0.2410
      5 |  1.281683  1.097642
        |  0.1000  0.1362
      6 |  1.083624  0.738198 -0.516952
        |  0.1393  0.2302  0.3026
      7 |  0.273361 -0.733301 -1.767517 -1.498732
        |  0.3923  0.2317  0.0386  0.0670
```

```
alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2
```

=====
Question – For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response by gender?

```
. dunnstest iknowledge, by(igender)

Warning: by() values are unlabeled, option nolabel implicit
```

Kruskal-Wallis equality-of-populations rank test

```
+-----+
| igender | Obs | Rank Sum |
+-----+-----+
|         1 | 19 |  598.00 |
|         2 | 44 | 1418.00 |
+-----+-----+
```

```
chi-squared =      0.022 with 1 d.f.
probability =      0.8810

chi-squared with ties =      0.028 with 1 d.f.
probability =      0.8662
```

```
          Dunn's Pairwise Comparison of iknowledge by igender
          (No adjustment)
Col Mean-|
Row Mean |          1
-----+-----
      2 | -0.168503
        |  0.4331
```

```
alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2
```

```
.
. dunnstest iparticipate, by(igender)

Warning: by() values are unlabeled, option nolabel implicit
```

Kruskal-Wallis equality-of-populations rank test

```
+-----+
| igender | Obs | Rank Sum |
+-----+-----+
|         1 | 19 |  502.00 |
|         2 | 44 | 1514.00 |
+-----+-----+
```

```
chi-squared = 2.520 with 1 d.f.
probability = 0.1124

chi-squared with ties = 2.603 with 1 d.f.
probability = 0.1067
```

Dunn's Pairwise Comparison of iparticipate by igender
(No adjustment)

```
Col Mean-|
Row Mean |          1
-----+-----
      2 | -1.613363
      |      0.0533
```

```
alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2
```

```
. dunnstest itotcost, by(igender)
```

Warning: by() values are unlabeled, option nolabel implicit

Kruskal-Wallis equality-of-populations rank test

```
+-----+
| igender | Obs | Rank Sum |
+-----+-----+
|      1 | 19 |  587.50 |
|      2 | 43 | 1365.50 |
+-----+-----+
```

```
chi-squared = 0.028 with 1 d.f.
probability = 0.8666
```

```
chi-squared with ties = 0.042 with 1 d.f.
probability = 0.8380
```

Dunn's Pairwise Comparison of itotcost by igender
(No adjustment)

```
Col Mean-|
Row Mean |          1
-----+-----
      2 | -0.204490
      |      0.4190
```

```
alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2
```

-
- [Question – For each of the factor variables \(knowledge, participation, and total cost\), are there differences in the average response by level of education?](#)

```
. dunnstest iknowledge, by(ied)
```

Warning: by() values are unlabeled, option nolabel implicit

Kruskal-Wallis equality-of-populations rank test

```
+-----+
| ied | Obs | Rank Sum |
+-----+-----+
|  1 |  1 |   43.00 |
|  2 |  3 |   96.50 |
|  3 | 57 | 1751.50 |
+-----+-----+
```

```
chi-squared = 0.483 with 2 d.f.
probability = 0.7854
```

```
chi-squared with ties = 0.629 with 2 d.f.
probability = 0.7303
```

```

Dunn's Pairwise Comparison of iknowledge by ied
(No adjustment)
Col Mean-|
Row Mean |          1          2
-----+-----
    2 | 0.602700
      | 0.2734
      |
    3 | 0.781528  0.156016
      | 0.2172    0.4380

```

```

alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2

```

```

. dunnstest iparticipate, by(ied)

```

Warning: by() values are unlabeled, option nolabel implicit

Kruskal-Wallis equality-of-populations rank test

```

+-----+
| ied | Obs | Rank Sum |
+-----+-----+
| 1 | 1 | 53.00 |
| 2 | 3 | 137.00 |
| 3 | 57 | 1701.00 |
+-----+

```

```

chi-squared = 3.826 with 2 d.f.
probability = 0.1477

```

```

chi-squared with ties = 3.948 with 2 d.f.
probability = 0.1389

```

```

Dunn's Pairwise Comparison of iparticipate by ied
(No adjustment)

```

```

Col Mean-|
Row Mean |          1          2
-----+-----
    2 | 0.363420
      | 0.3581
      |
    3 | 1.313711  1.528732
      | 0.0945    0.0632

```

```

alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2

```

```

. dunnstest itotcost, by(ied)

```

Warning: by() values are unlabeled, option nolabel implicit

Kruskal-Wallis equality-of-populations rank test

```

+-----+
| ied | Obs | Rank Sum |
+-----+-----+
| 1 | 1 | 40.50 |
| 2 | 3 | 94.00 |
| 3 | 56 | 1695.50 |
+-----+

```

```

chi-squared = 0.344 with 2 d.f.
probability = 0.8420

```

```

chi-squared with ties = 0.500 with 2 d.f.
probability = 0.7788

```

```

Dunn's Pairwise Comparison of itotcost by ied
(No adjustment)

```

```

Col Mean-|
Row Mean |          1          2

```

```
-----+-----
      2 | 0.548145
        | 0.2918
      3 | 0.699677 0.123104
        | 0.2421 0.4510
```

```
alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2
```

- Question: For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response based upon racer or ethnicity?

```
. dunnstest iknowledge, by(ieth)
```

```
Warning: by() values are unlabeled, option nolabel implicit
```

```
Kruskal-Wallis equality-of-populations rank test
```

```
+-----+
| ieth | Obs | Rank Sum |
+-----+-----+
| 1 | 53 | 1859.50 |
| 2 | 2 | 22.50 |
| 3 | 1 | 7.00 |
| 4 | 4 | 93.00 |
| 7 | 3 | 34.00 |
+-----+
```

```
chi-squared = 10.649 with 4 d.f.
probability = 0.0308
```

```
chi-squared with ties = 13.481 with 4 d.f.
probability = 0.0091
```

```
Dunn's Pairwise Comparison of iknowledge by ieth
(No adjustment)
```

```
Col Mean-|
Row Mean | 1 2 3 4
+-----+
      2 | 2.031072
        | 0.0211
      3 | 1.707868 0.213002
        | 0.0438 0.4157
      4 | 1.400992 -0.850533 -0.892152
        | 0.0806 0.1975 0.1862
      7 | 2.456616 -0.005603 -0.230353 0.957716
        | 0.0070 0.4978 0.4089 0.1691
```

```
alpha = 0.05
Reject Ho if p = P(Z <= |z|) <= alpha/2
```

```
. dunnstest iparticipate, by(ieth)
```

```
Warning: by() values are unlabeled, option nolabel implicit
```

```
Kruskal-Wallis equality-of-populations rank test
```

```
+-----+
| ieth | Obs | Rank Sum |
+-----+-----+
| 1 | 53 | 1836.00 |
| 2 | 2 | 24.00 |
| 3 | 1 | 32.00 |
| 4 | 4 | 84.50 |
| 7 | 3 | 39.50 |
+-----+
```

```
chi-squared = 8.056 with 4 d.f.
probability = 0.0895
```

chi-squared with ties = 8.321 with 4 d.f.
 probability = 0.0805

Dunn's Pairwise Comparison of iparticipate by ieth
 (No adjustment)

Col Mean- Row Mean	1	2	3	4
2	1.742754 0.0407			
3	0.145095 0.4423	-0.905406 0.1826		
4	1.445287 0.0742	-0.584200 0.2795	0.539304 0.2948	
7	2.006289 0.0224	-0.070859 0.4718	0.904309 0.1829	0.577727 0.2817

alpha = 0.05
 Reject Ho if p = P(Z <= |z|) <= alpha/2

. dunnstest itotcost, by(ieth)

Warning: by() values are unlabeled, option nolabel implicit

Kruskal-Wallis equality-of-populations rank test

ieth	Obs	Rank Sum
1	52	1672.00
2	2	54.50
3	1	41.50
4	4	166.00
7	3	19.00

chi-squared = 7.553 with 4 d.f.
 probability = 0.1094

chi-squared with ties = 11.196 with 4 d.f.
 probability = 0.0245

Dunn's Pairwise Comparison of itotcost by ieth
 (No adjustment)

Col Mean- Row Mean	1	2	3	4
2	0.459251 0.3230			
3	-0.624727 0.2661	-0.785168 0.2162		
4	-1.215526 0.1121	-1.110396 0.1334	0.000000 0.5000	
7	2.934536 0.0017	1.546239 0.0610	2.055206 0.0199	3.107180 0.0009

alpha = 0.05
 Reject Ho if p = P(Z <= |z|) <= alpha/2

- Question: For each of the factor variables (knowledge, participation, and total cost), are there differences in the average response [based experience working in a hospital?](#)

. dunnstest iknowledge, by(ihwork)

Warning: by() values are unlabeled, option nolabel implicit

Kruskal-Wallis equality-of-populations rank test

```

+-----+
| ihwork | Obs | Rank Sum |
+-----+-----+
|      0 | 38 | 1196.50 |
|      1 | 16 |  439.00 |
|      2 |  9 |  380.50 |
+-----+-----+

```

chi-squared = 3.850 with 2 d.f.
probability = 0.1458

chi-squared with ties = 4.875 with 2 d.f.
probability = 0.0874

Dunn's Pairwise Comparison of iknowledge by ihwork
(No adjustment)

```

Col Mean-|
Row Mean |          0          1
+-----+-----+
  1 |  0.834026
    |  0.2021
    |
  2 | -1.786749 -2.186219
    |  0.0370   0.0144

```

alpha = 0.05
Reject Ho if $p = P(Z \leq |z|) \leq \alpha/2$

```
. dunntest iparticipate, by(ihwork)
```

Warning: by() values are unlabeled, option nolabel implicit

Kruskal-Wallis equality-of-populations rank test

```

+-----+
| ihwork | Obs | Rank Sum |
+-----+-----+
|      0 | 38 | 1060.00 |
|      1 | 16 |  540.00 |
|      2 |  9 |  416.00 |
+-----+-----+

```

chi-squared = 7.470 with 2 d.f.
probability = 0.0239

chi-squared with ties = 7.716 with 2 d.f.
probability = 0.0211

Dunn's Pairwise Comparison of iparticipate by ihwork
(No adjustment)

```

Col Mean-|
Row Mean |          0          1
+-----+-----+
  1 | -1.089332
    |  0.1380
    |
  2 | -2.741107 -1.659641
    |  0.0031   0.0485

```

alpha = 0.05
Reject Ho if $p = P(Z \leq |z|) \leq \alpha/2$

```
. dunntest itotcost, by(ihwork)
```

Warning: by() values are unlabeled, option nolabel implicit

Kruskal-Wallis equality-of-populations rank test

```

+-----+

```


ihwork	Obs	Rank Sum
0	38	1081.00
1	16	540.00
2	8	332.00

chi-squared = 3.794 with 2 d.f.
 probability = 0.1500

chi-squared with ties = 5.625 with 2 d.f.
 probability = 0.0601

Dunn's Pairwise Comparison of itotcost by ihwork
 (No adjustment)

Col Mean-		
Row Mean	0	1
1	-1.200715	
	0.1149	
2	-2.264381	-1.207799
	0.0118	0.1136

alpha = 0.05
 Reject Ho if $p = P(Z \leq |z|) \leq \alpha/2$