

Supplementary File 2:

This document shows the output of the Kruskal-Wallis rank sum test with a Bonferroni correction for differences between groups of bottled water consumption for items in Tables 1, 2 and 3.

When the obtained p value of a Kruskal-Wallis yields significant differences, it indicates that at least one of the groups is different from at least one of the others. For post-hoc analysis, the `kruskalmc` function in the `pgirmess` package was used. This function implements Dunn's *post hoc* rank sum comparison using z test statistics as directed by Siegel and Castellan (1988). This test helps determining which groups are different pairwise with comparisons adjusted appropriately. Those pairs of groups which have observed differences in mean ranks higher than a critical value are considered statistically different at the given probability (p level).

Table 1

Item 6.1_ It is safer to drink bottled water than tap water

Kruskal-Wallis rank sum test

Item 6.1

```
> kruskal.test(Item6.1 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item6.1 by FakConsumption2

Kruskal-Wallis chi-squared = 89.3874, df = 3, **p-value < 2.2e-16**

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = .0016$

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item6.1 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)  
Multiple comparison test after Kruskal-Wallis  
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	146.10592	64.63178	TRUE
1-3	266.62728	92.24337	TRUE
1-4	243.09407	145.71845	TRUE
2-3	120.52136	96.98944	TRUE
2-4	96.98815	148.76821	FALSE
3-4	23.53321	162.67622	FALSE

Mean Rank in 1 = a
Mean rank in 2 = b
Mean Rank in 3 = c
Mean Rank in 4 =bc

This table shows that there are no differences between groups 3 and 4 and 2 and 4, but there are differences between 1 and 2, 1 and 3, 1 and 4 and 2 and 3

Item 6.2: "I prefer the taste of bottled water more than that of tap water"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item6.2 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item6.2 by FakConsumption2

Kruskal-Wallis chi-squared = 134.0423, df = 3, **p-value < 2.2e-16**

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations)= 0.008 or $0.01/6= .0016$

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item6.2 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)  
Multiple comparison test after Kruskal-Wallis  
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	135.74279	64.63178	TRUE
1-3	345.99436	92.24337	TRUE
1-4	330.19075	145.71845	TRUE
2-3	210.25157	96.98944	TRUE
2-4	194.44797	148.76821	TRUE
3-4	15.80361	162.67622	FALSE

Mean Rank in 1 = a
Mean Rank in 2 = b
Mean Rank in 3 = c
Mean Rank in 4 = c

Item 6.3: "At the university campus there are not appropriate facilities to refill the bottles"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item6.3 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item6.3 by FakConsumption2

Kruskal-Wallis chi-squared = 16.2354, df = 3, p-value = 0.001015

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = 0.0016$; **0.0010 < 0.0016, significantly different**

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item6.3 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)  
Multiple comparison test after Kruskal-Wallis  
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	38.83959	64.63178	FALSE
1-3	113.45223	92.24337	TRUE
1-4	136.94054	145.71845	FALSE
2-3	74.61264	96.98944	FALSE
2-4	98.10095	148.76821	FALSE
3-4	23.48832	162.67622	FALSE

Mean rank in 1 = a

Mean rank in 2 = ab

Mean rank in 3 = b

Mean rank in 4 = b

Item 6.4: "Reusing plastic bottles involves too much time and effort"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item6.4 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item6.4 by FakConsumption2

Kruskal-Wallis chi-squared = 25.8622, df = 3, **p-value = 1.019e-05**

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = 0.0016$

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item6.4 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
Multiple comparison test after Kruskal-Wallis
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	69.27711	64.63178	TRUE
1-3	138.84737	92.24337	TRUE
1-4	107.48761	145.71845	FALSE
2-3	69.57027	96.98944	FALSE
2-4	38.21050	148.76821	FALSE
3-4	31.35976	162.67622	FALSE

Mean rank in 1 = a
Mean rank in 2 = ab
Mean rank in 3 = b
Mean rank in 4 = ab

Item 6.5: "I feel guilty if I bin a plastic bottle after a single use"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item6.5 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item6.5 by FakConsumption2

Kruskal-Wallis chi-squared = 36.5291, df = 3, p-value = 5.788e-08

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = 0.0016$

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item6.5 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
Multiple comparison test after Kruskal-Wallis
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	87.67147	64.63178	TRUE
1-3	181.44873	92.24337	TRUE
1-4	133.68973	145.71845	FALSE
2-3	93.77725	96.98944	FALSE
2-4	46.01826	148.76821	FALSE
3-4	47.75900	162.67622	FALSE

Mean rank in 1 = a
Mean rank in 2 = b
Mean rank in 3 = b
Mean rank in 4 = ab

Table 2

Item 7.1: "Using glass or reusable bottles is safer than using plastic bottles"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item7.1 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)
```

```
Kruskal-Wallis rank sum test  
data: Item7.1 by FakConsumption2
```

```
Kruskal-Wallis chi-squared = 6.496, df = 3, p-value = 0.08982
```

No significant differences

Item 7.2: "By using a glass or reusable bottle, I motivate others to do the same"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item7.2 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)
```

```
Kruskal-Wallis rank sum test  
data: Item7.2 by FakConsumption2
```

```
Kruskal-Wallis chi-squared = 6.6466, df = 3, p-value = 0.08406
```

No significant differences

Item 7.3: "Carrying around a glass or reusable bottle is inconvenient"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item7.3 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)
```

```
Kruskal-Wallis rank sum test  
data: Item7.3 by FakConsumption2
```

```
Kruskal-Wallis chi-squared = 29.7753, df = 3, p-value = 1.539e-06
```

```
p limit with Bonferroni correction = 0.05/6 (4 groups yields six  
combinations)= 0.008 or 0.01/6= 0.0016
```

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item7.3 ~ FakConsumption2,  
data=ura2013_EHU_en_NAgabe_corr)  
Multiple comparison test after Kruskal-Wallis  
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	95.610417	64.63178	TRUE
1-3	93.110508	92.24337	TRUE
1-4	212.379916	145.71845	TRUE
2-3	2.499908	96.98944	FALSE
2-4	116.769500	148.76821	FALSE
3-4	119.269408	162.67622	FALSE

```
> cld(.Pairs) # compact letter display
```

Mean rank in 1 = a

Mean rank in 2= b

Mean rank in 3 = b

Mean rank in 4 = b

Table 3**Item 8.1: "Tap water is cheaper than bottled water"**Kruskal-Wallis rank sum test

```
> kruskal.test(Item8.1 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item8.1 by FakConsumption2

Kruskal-Wallis chi-squared = 12.4876, df = 3, p-value = 0.005886

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = 0.0016$; **0.0058 < 0.008**

A pairwise comparison does not yield differences (kruskalmc)

Item 8.2: "I trust tap water's quality"Kruskal-Wallis rank sum test

```
> kruskal.test( RecodItem8.2 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: RecodItem8.2 by FakConsumption2

Kruskal-Wallis chi-squared = 102.0997, df = 3, **p-value < 2.2e-16**

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = 0.0016$

Multiple comparisons using kruskalmc in R

```
> kruskalmc(RecodItem8.2 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
Multiple comparison test after Kruskal-Wallis
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	103.52700	64.63178	TRUE
1-3	282.00571	92.24337	TRUE
1-4	309.22057	145.71845	TRUE
2-3	178.47871	96.98944	TRUE
2-4	205.69357	148.76821	TRUE
3-4	27.21486	162.67622	FALSE

Mean rank in 1 = a
 Mean rank in 2 = b
 Mean rank in 3 = c
 Mean rank in 4 = c

Item 8.3: "If I drink tap water I don't have to go to the cafeteria or the machine to purchase bottled water"

Kruskal-Wallis rank sum test

```
> kruskal.test( Item8.3 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item8.3 by FakConsumption2

Kruskal-Wallis chi-squared = 52.6997, df = 3, p-value = 2.125e-11

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = 0.0016$

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item8.3 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
Multiple comparison test after Kruskal-Wallis
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	120.15879	64.63178	TRUE
1-3	187.62064	92.24337	TRUE
1-4	170.23672	145.71845	TRUE
2-3	67.46186	96.98944	FALSE
2-4	50.07793	148.76821	FALSE
3-4	17.38393	162.67622	FALSE

Mean rank in 1 = a
 Mean rank in 2 = b
 Mean rank in 3 = b
 Mean rank in 4 = b

Item 8.4: "If I drink tap water I am contributing less plastic to landfills"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item8.4 ~ FakConsumption2,
data=ura2013_EHU_en_Nagabe_corr)
```

Kruskal-Wallis rank sum test

data: Item8.4 by FakConsumption2

Kruskal-Wallis chi-squared = 50.5408, df = 3, p-value = 6.128e-11

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = 0.0016$

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item8.4 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
Multiple comparison test after Kruskal-Wallis
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	71.60654	64.63178	TRUE
1-3	178.09119	92.24337	TRUE
1-4	203.39922	145.71845	TRUE
2-3	106.48464	96.98944	TRUE
2-4	131.79268	148.76821	FALSE
3-4	25.30804	162.67622	FALSE

Mean rank in 1 = a
Mean rank in 2 = b
Mean rank in 3 = c
Mean rank in 4 = bc

Item 8.5: "If I drink tap water I can reduce my consumption of oil to make plastics"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item8.5 ~ FakConsumption2,
data=ura2013_EHU_en_Nagabe_corr)
```

Kruskal-Wallis rank sum test

data: Item8.5 by FakConsumption2
Kruskal-Wallis chi-squared = 59.5124, df = 3, p-value = 7.472e-13

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations) = 0.008 or $0.01/6 = 0.0016$

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item8.5 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
Multiple comparison test after Kruskal-Wallis
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	57.82034	64.63178	FALSE
1-3	218.19493	92.24337	TRUE

1-4	176.05841	145.71845	TRUE
2-3	160.37459	96.98944	TRUE
2-4	118.23807	148.76821	FALSE
3-4	42.13652	162.67622	FALSE

Mean rank in 1 = a
Mean rank in 2 = a
Mean rank in 3 = b
Mean rank in 4 = ab

Item 8.6: "If I drink tap water, I am reducing my personal contribution to global climate change"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item8.6 ~ FakConsumption2,
data=ura2013_EHU_en_Nagabe_corr)
```

Kruskal-Wallis rank sum test

data: Item8.6 by FakConsumption2
Kruskal-Wallis chi-squared = 31.9206, df = 3, p-value = 5.439e-07

p limit with Bonferroni correction = 0.05/6 (4 groups yields six combinations)= 0.008 or 0.01/6= 0.0016

Multiple comparisons using kruskalmc in R

```
> kruskalmc(Item8.6 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
Multiple comparison test after Kruskal-Wallis
p.value: 0.05
```

Comparisons	obs.dif	critical.dif	difference
1-2	58.751549	64.63178	FALSE
1-3	159.236046	92.24337	TRUE
1-4	165.161663	145.71845	TRUE
2-3	100.484497	96.98944	TRUE
2-4	106.410115	148.76821	FALSE
3-4	5.925617	162.67622	FALSE

Mean rank in 1 = a
Mean rank in 2 = ab
Mean rank in 3 = c
Mean rank in 4 = bc

Item 8.7. If I drink tap water, I am helping to make our campus more sustainable

Kruskal-Wallis rank sum test

```
> kruskal.test(Item8.7 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item8.7 by FakConsumption2

Kruskal-Wallis chi-squared = 35.5836, df = 3, p-value = 9.171e-08

p limit with Bonferroni correction = $0.05/6$ (4 groups yields six combinations)= 0.008 or $0.01/6= 0.0016$

```
> kruskalmc(Item8.7 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
```

Multiple comparison test after Kruskal-Wallis
p.value: 0.05

Comparisons	obs.dif	critical.dif	difference
1-2	64.37119	64.63178	FALSE
1-3	154.38270	92.24337	TRUE
1-4	203.28411	145.71845	TRUE
2-3	90.01151	96.98944	FALSE
2-4	138.91292	148.76821	FALSE
3-4	48.90140	162.67622	FALSE

Mean rank in 1 = a

Mean rank in 2 = abc

Mean rank in 3 = bc

Mean rank in 4 = c

```
> cld(.Pairs) # compact letter display
```

```
  2    3    4    1
"ab" "bc" "c" "a"
```

Item 8.8: "When I go to the campus restaurant, I can get tap water"

Kruskal-Wallis rank sum test

```
> kruskal.test(Item8.8 ~ FakConsumption2,
data=ura2013_EHU_en_NAgabe_corr)
```

Kruskal-Wallis rank sum test

data: Item8.8 by FakConsumption2

Kruskal-Wallis chi-squared = 3.89, df = 3, p-value = 0.2736