

R HELP SHEET: Two-Way Chi-Square (from frequencies)

This help sheet covers doing a two-way chi-square starting with data which are in frequency form. There is a separate help sheet for doing a two-way chi-square starting with data as raw observations.

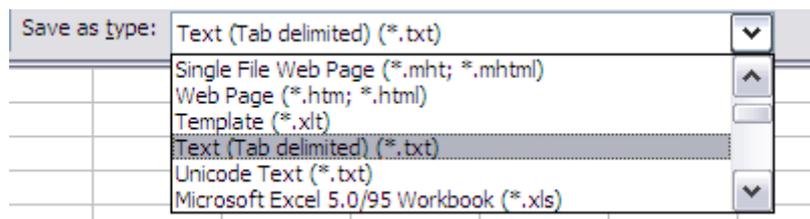
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1. Creating a tab delimited data file using Excel

Open Excel and type frequencies into rows and columns with appropriate headings (e.g., *dry*, *wet* and *solitary.bull*, *bull.group* etc.), then save the file as a **Text (Table delimited)(*.txt)** with an appropriate name (e.g., *RData_Elephants*) file using **Save as type**. Note use full stops rather than spaces in column headings, this would also apply to column headings.

	A	B	C	D	E
1		solitary.bull	bull.group	family.group	family.with.bull
2	dry	43	4	196	7
3	wet	92	17	195	8



2. Conducting a two-way chi-square test

The text in green after the hash (#) sign is just **notes** to help you remember what's in the output: it does not get R to actually "do" anything. The text in blue is **R code** with stars representing words that are specific to the example: you need to replace this with text specific to your data as shown in the output in section 3.

To get R to conduct a two-way chi-square test:

Open an **R-Editor** window by selecting **File** then **New script**.

Type in (or copy and paste) the notes and code below.

Replace the stars with appropriate text as indicated in notes.

Highlight everything and press **Ctrl R**.

#Importing data from tab delimited file

***(replace stars with an appropriate object name e.g., eles)**

```
****<-read.table(file.choose(),header=TRUE)
```

```
attach(****)
```

#Conducting a two-way chi-square

***(replace stars with appropriate text e.g., eles)**

```
chisq.test(****)
```

3. Identifying the key elements of the output

Following the instructions above will produce the following output in the **R Console** window: the **key elements** are annotated in blue.

```
> #Importing data from tab delimited file
> #(replace stars with an appropriate object name e.g.,eles)
> eles<-read.table(file.choose(),header=TRUE)
> attach(eles)
>
> #Conducting a two-way chi-square
> #(replace stars with appropriate text e.g.,eles)
> chisq.test(eles)
  Pearson's Chi-squared test

data:  eles
X-squared = 19.297, df = 3, p-value = 0.0002373
```

Statistic **Degrees of Freedom** **P Value**

In summary the key information from the test is
two-way classification chi-square: $X^2_3 = 19.30$, $N = 562$, $P < 0.001$

4. Additional note

To find total sample size (N) use the following code:

```
#To find total sample size
```

```
sum(*****)
```

For example: `sum(eles)`