

ACCP Critical Care PRN: Guide to Performing Basic Statistical Testing using R Commander

PURPOSE

To provide a brief introduction to the performance of statistical testing using R Commander.

DISCLAIMER

This document is to be used as an introductory guide and is not intended to replace a trained professional, statistician, or experienced researcher and is not intended to be the sole resource for individualized resident research projects.

ACKNOWLEDGEMENTS

This guide was created by members of the Critical Care PRN Research Committee with advanced education in statistical analysis in 2018. We would like to acknowledge the following members for their assistance in creating this resource: Melissa Thompson Bastin, PharmD, BCPS; Brittany Bissell, PharmD, BCCCP; Benjamin Hohlfelder, PharmD, BCPS; Joshua DeMott, PharmD, MSc, BCPS, BCCCP; Kendall Gross, PharmD, BCPS, BCCCP; Zachary Smith, PharmD, BCPS, BCCCP; Adrian Wong, PharmD, MPH, BCPS, BCCCP (chair).

R COMMANDER

R Commander is a functionality of R that allows the user to perform functions/analyses using point and click methods instead of entering code. Newer users of statistical software or those unfamiliar with dictating code may prefer to use this methodology.

Installing R Commander

After opening R, type the code “install.packages(“Rcmdr”)” then hit Return. Select the nearest CRAN mirror, then click OK.

For future uses of R, type the code library(Rcmdr) then hit Return to run R Commander

R Gui (32-bit) - [R Console]
File Edit View Misc Packages Windows Help

R version 3.4.3 (2017-11-30) -- "Kite-Eating Tree"
Copyright (C) 2017 The R Foundation for Statistical Computing
Platform: i386-w64-mingw32/i386 (32-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> install.packages("Rcmdr")

Bulgaria [https]
Côte d'Ivoire [https]
Côte d'Ivoire [https]
China (Guangzhou) [https]
China (Lanzhou) [https]
China (Shanghai) [https]
China (Shanghai) [https]
Colombia (Col) [https]
Czech Republic [https]
Denmark [https]
East Asia [https]
Ecuador (Quito) [https]
Estonia [https]
France (Paris 1) [https]
France (Paris 2) [https]
France (Montpellier) [https]
France (Montpellier) [https]
Germany (Bitterfeld) [https]
Germany (Göttingen) [https]
Germany (Münster) [https]
Greece [https]
Iceland [https]
India [https]
Indonesia (Jakarta) [https]
Ireland [https]
Italy (Padua) [https]
Japan (Tokyo) [https]
Japan (Yokohama) [https]
Korea (Seoul) [https]
Korea (Ulsan) [https]
Malaysia [https]
Mexico (Mexico City) [https]
Norway [https]
Philippines [https]
Serbia [https]
Spain (A Coruña) [https]
Spain (Madrid) [https]
Sweden [https]
Switzerland [https]

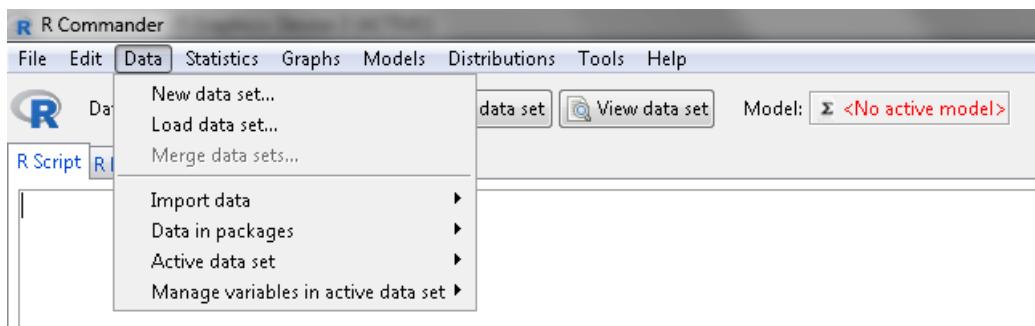
Using R Commander

R Commander will have different headings.

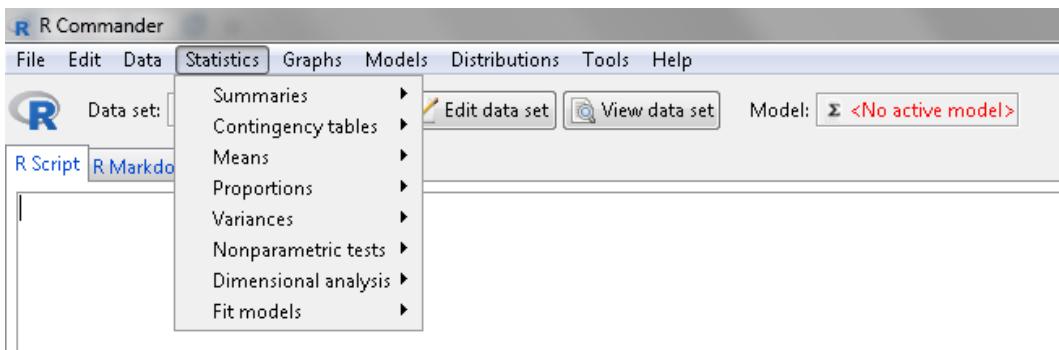


The Data header will allow the user to perform several tasks. Users can upload or open data sets, view different elements of a data set, edit or manipulate a data set, or delete certain variables or entries from a data set.

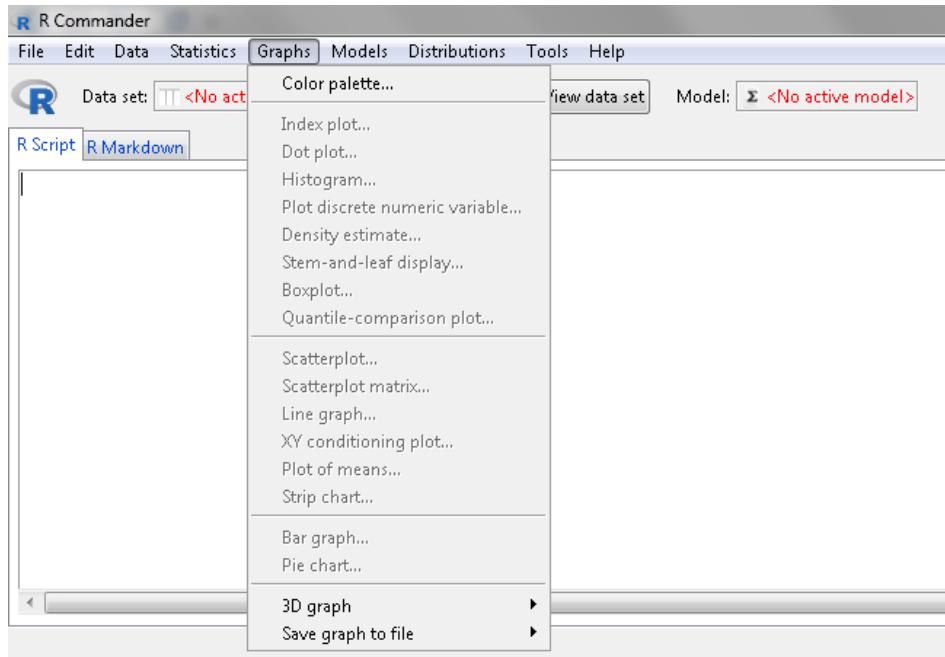
To import the AWSFinal data, you would go to Import Data → From Excel file... → (locate AWSFinal data) → (load 'Data' tab).



The Statistics header where will be where the user can find the majority of statistical tests they will need to run in R. Statistical tests are grouped by the type of data they are describing (e.g., means, proportions).

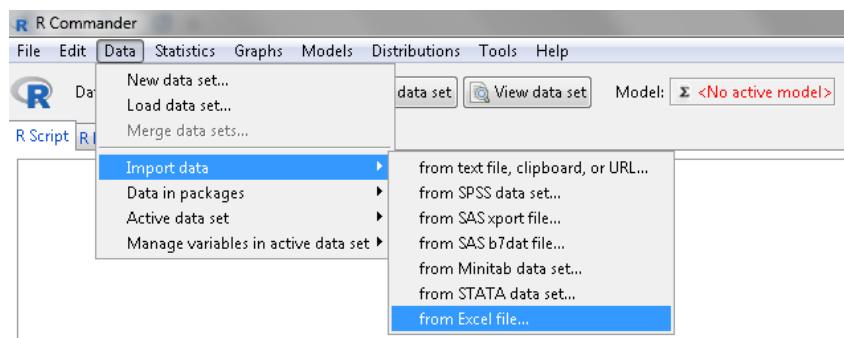


Graphs may be useful to visualize data (e.g., visual assessment of normality) or for developing figures for manuscript or poster elements.

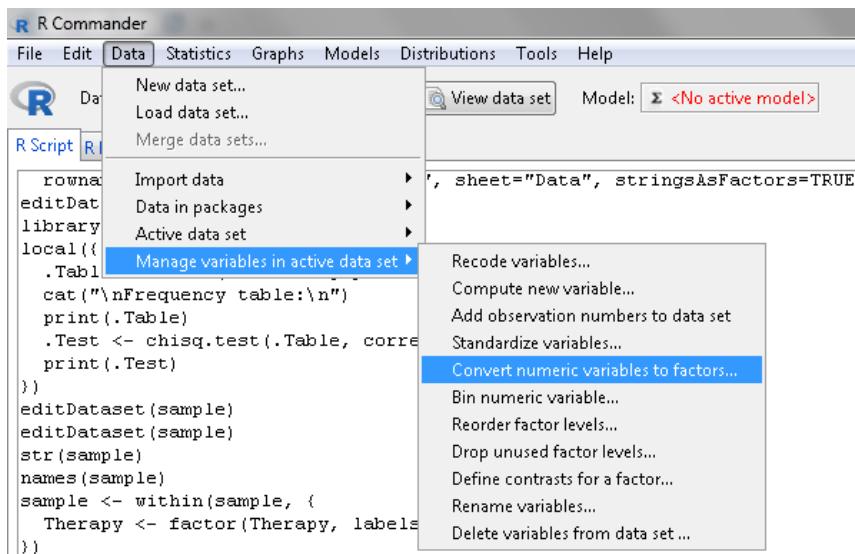


EXAMPLE

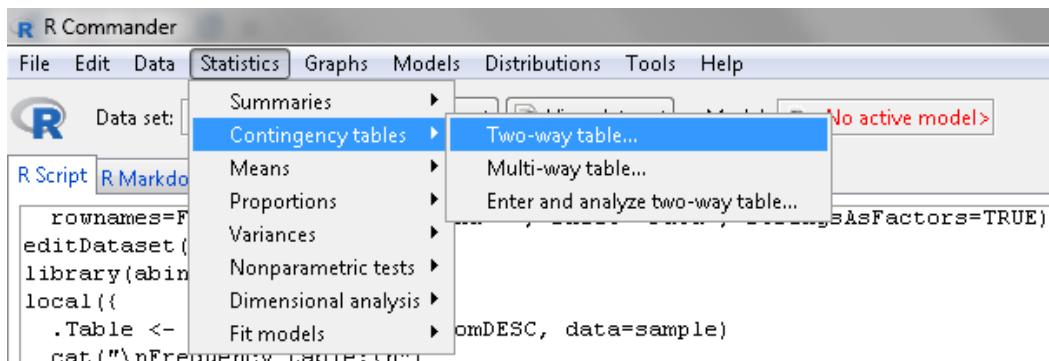
1. Open R Commander using the code library(Rcmdr), then hit Return.
2. Import your data set



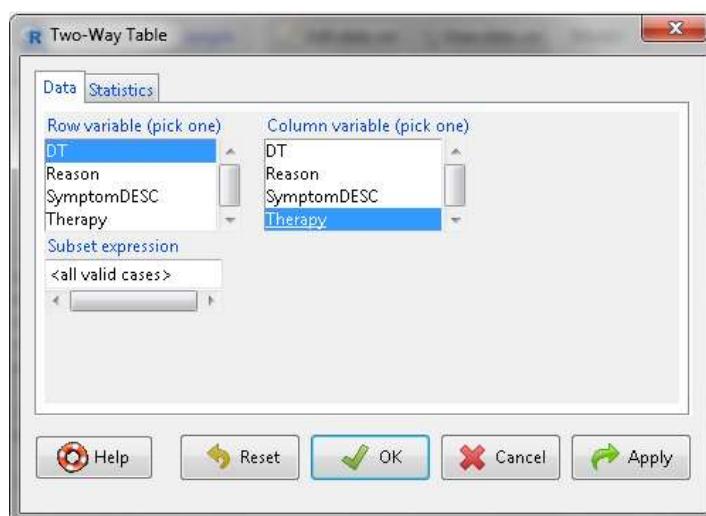
3. Performing statistical tests
 - a. For categorical variables (assuming adequate sample size and independent data), using χ^2 test
 - i. First, ensure that your categorical variables are labeled as “Factors”



ii. Next, perform χ^2 test using two-way table.



iii. Select variables for contingency table (can do tables beyond 2x2 table using “Multi-way table”)



iv. Frequency table and χ^2 test will be displayed in Output screen

```
Frequency table:  
  Therapy  
DT    Dex Ket  
No     18  23  
Yes      7   2  
  
Pearson's Chi-squared test  
  
data: .Table  
X-squared = 3.3875, df = 1, p-value = 0.06569
```