Web-based Meta-Analysis Using R

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Contents

Chapter 1

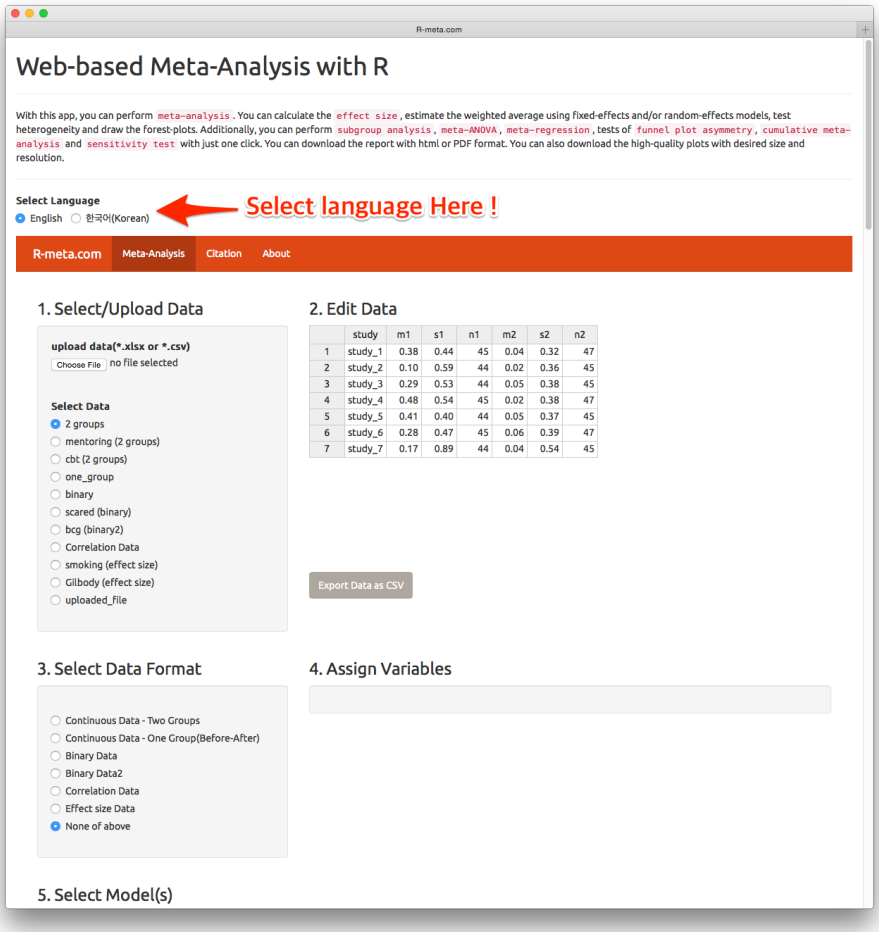
Getting Started

Welcome to the "Web-based Meta-Analysis Using R". In this chapter, you can perform the first `web-based meta-analysis` of your own using the sample data in a minute.

1.1 Perform Meta-Analysis In A Minute

1.1.1 The first screen : Select language

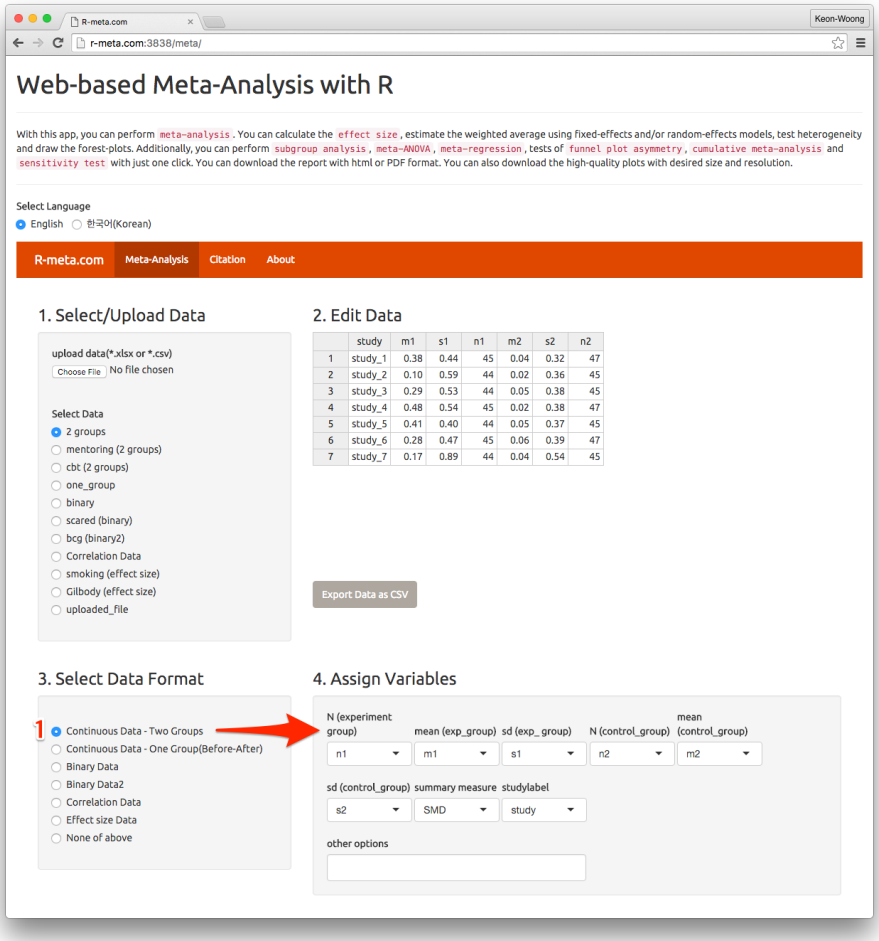
When you load the meta-analysis app, you can see this screen. Currently, this app support English and Korean. You can select your preferred language(arrow).



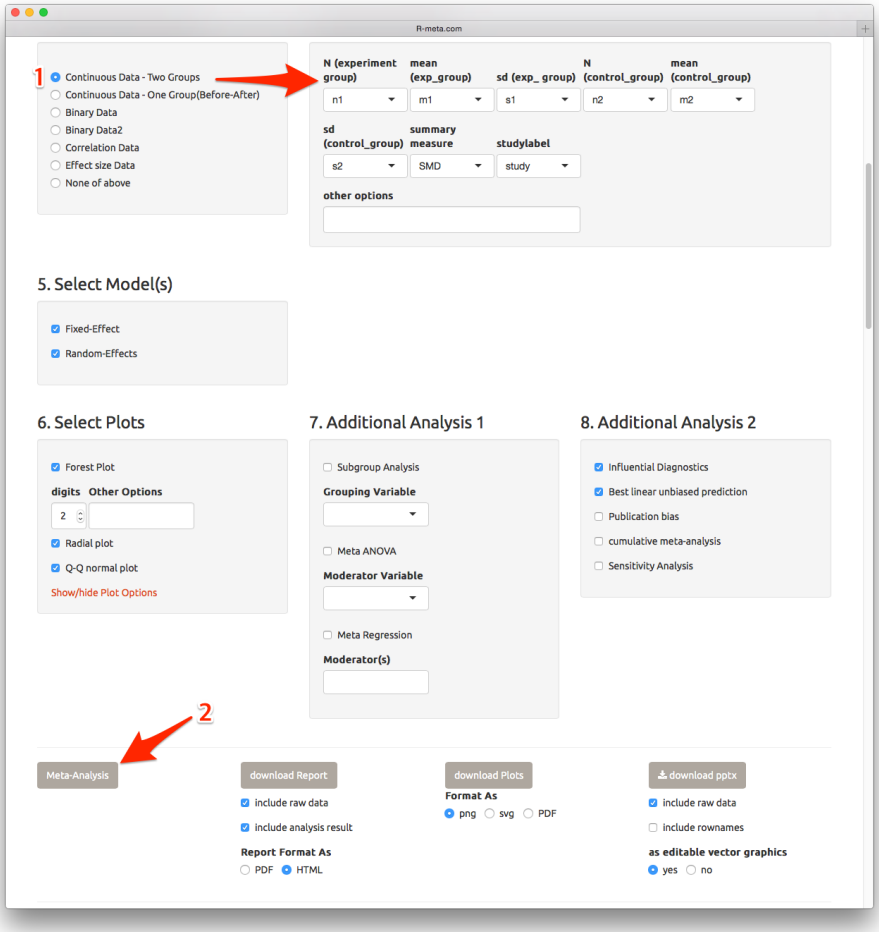
1.1.2 Steps for meta-analysis

Performing meta-analysis with sample data is very simple. You can finish in five steps. Of these, just two clicks can do this.

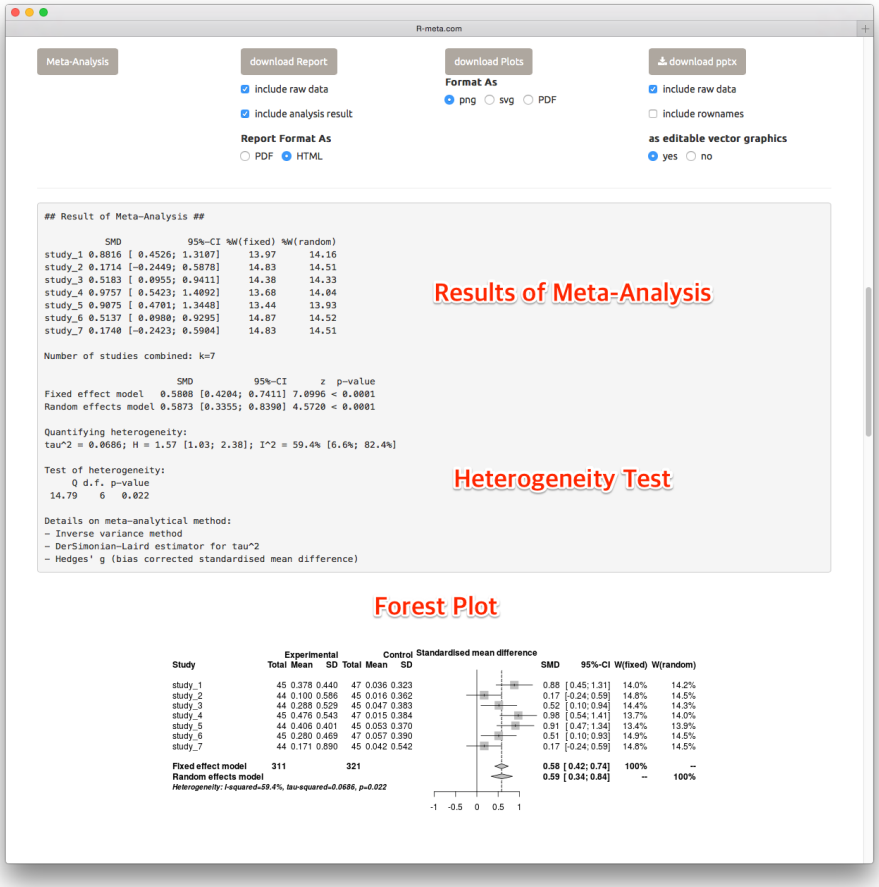
1. Select/Upload Data . . . use default data.
2. Edit Data . . . No action required.
3. Select Data Format . . . (1)
4. Assign Variables . . . (arrow) No action required.



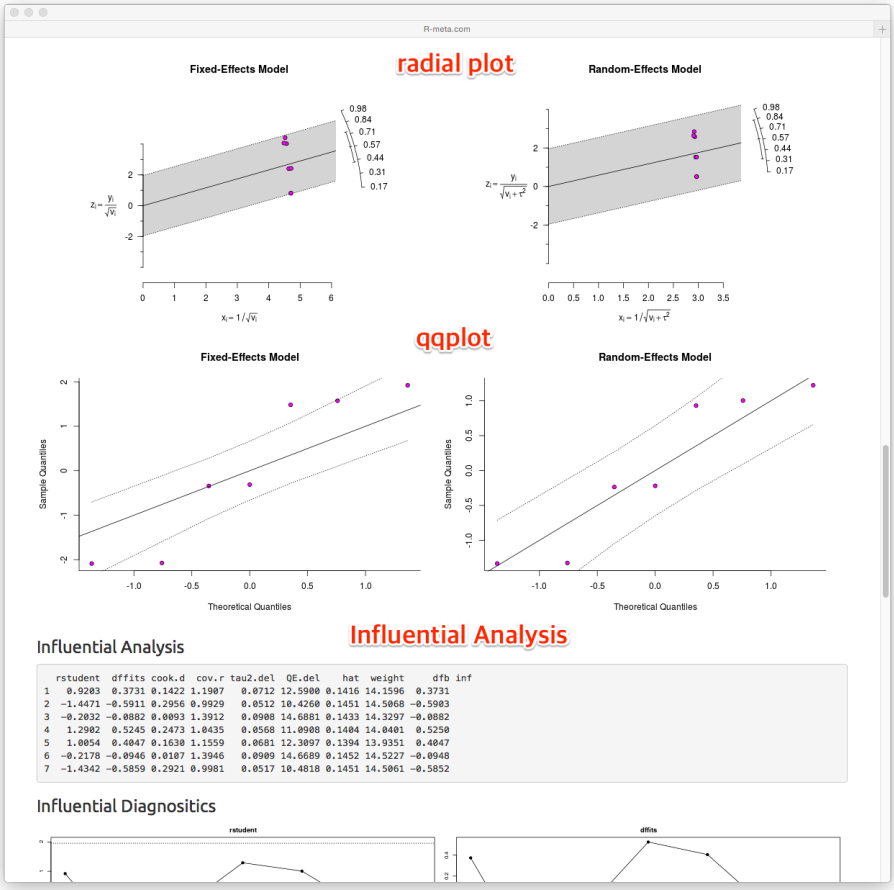
... And click the `Meta Analysis` button(2).



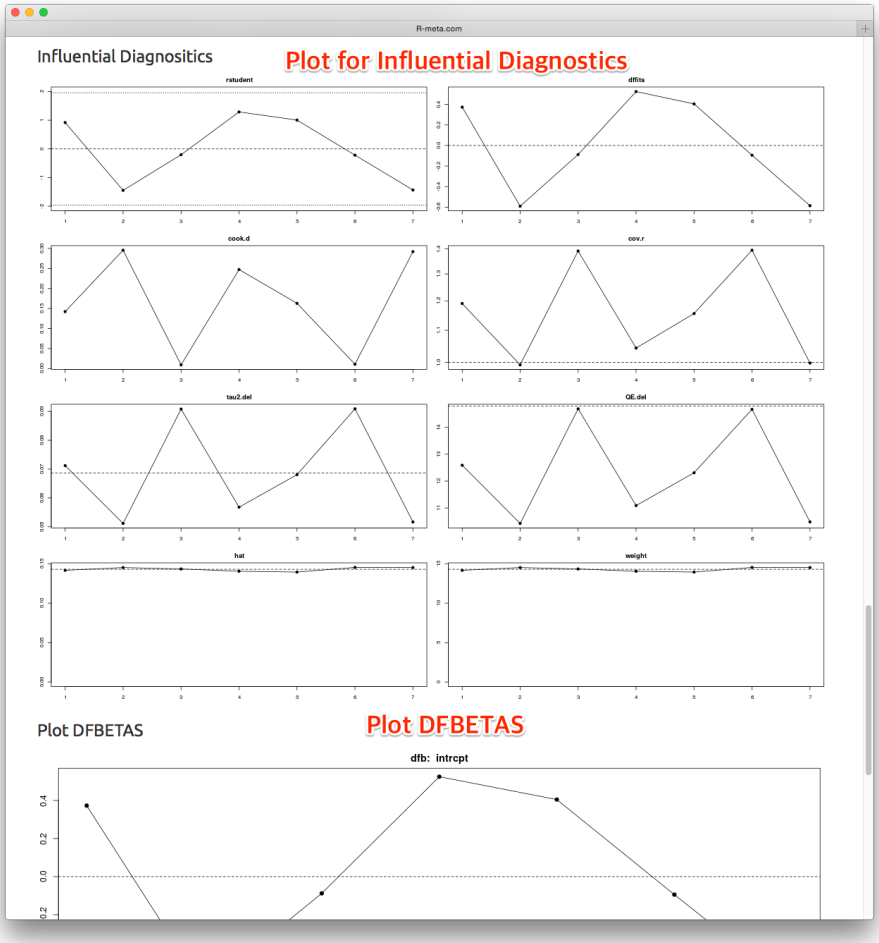
You can get the meta-analysis results as well as result of homogeneity test followed by the forest plot.

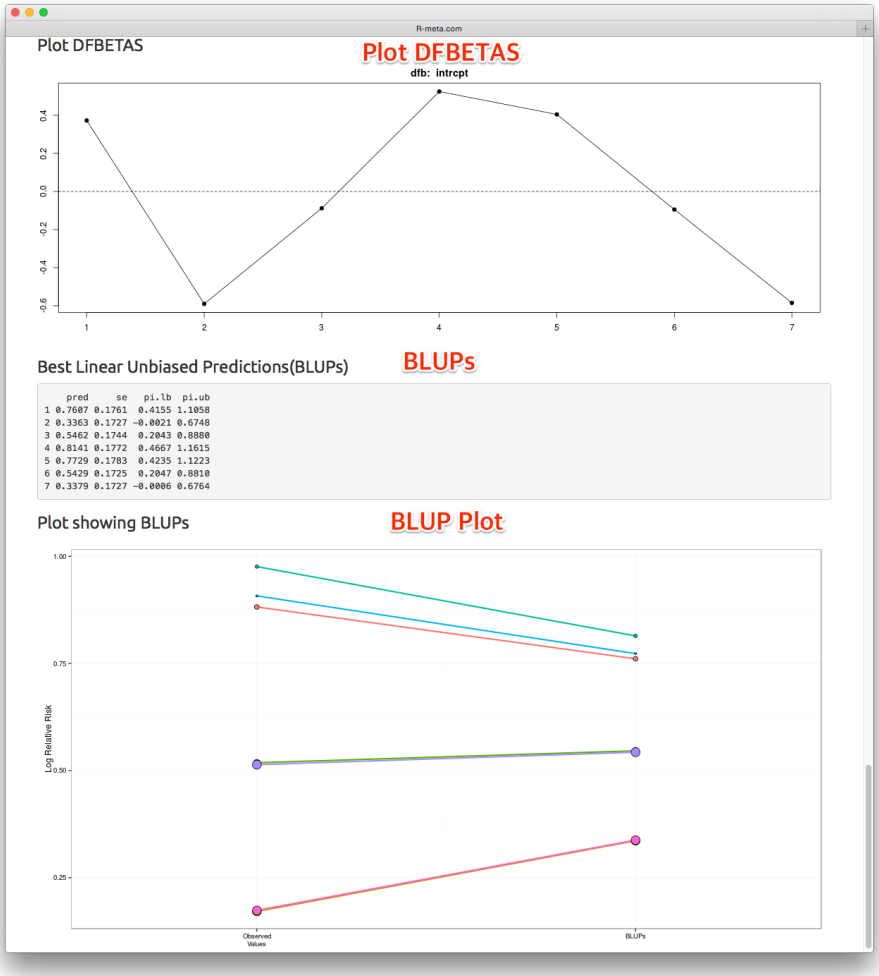


You can also get the radial plot(s) and the qqplot(s).



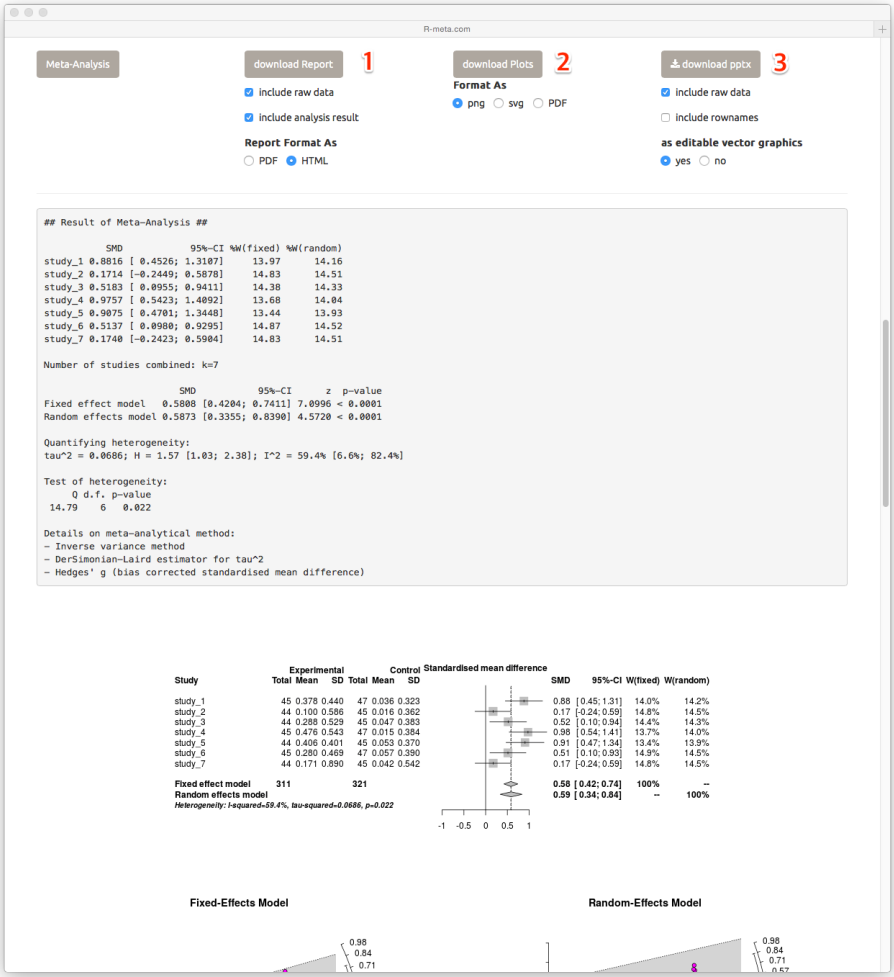
By default, you can also get the result of influential analysis and plots for influential diagnositics, DFBETAS plot followed by best linear unbiased prectictions(BLUP) and BLUP plot.




R-meta.com
Plot DFBETAS
Plot DFBETAS
dfb: intrcpt
0.4
0.2
0.0
-0.2
-0.4
-0.6
1
2
3
4
5
6
7
Best Linear Unbiased Predictions(BLUPs)
BLUPs
pred se pi.lb pi.ub
1 0.7607 0.1761 0.4155 1.1058
2 0.3363 0.1727 -0.0021 0.6748
3 0.5462 0.1744 0.2043 0.8880
4 0.8141 0.1772 0.4667 1.1615
5 0.7729 0.1783 0.4235 1.1223
6 0.5429 0.1725 0.2047 0.8810
7 0.3379 0.1727 -0.0006 0.6764
Plot showing BLUPs
BLUP Plot
1.00
0.75
0.50
0.25
Log Relative Risk
Observed Values
BLUPs

1.1.3 Download Results

You can download Report(1) as PDF(*.pdf), HTML(*.html,default) format. You can download plots(2) with png, svg or pdf format. You can download all results as a powerpoint file(*.pptx)(3). You can select editable vector graphics in powerpoint file(default).



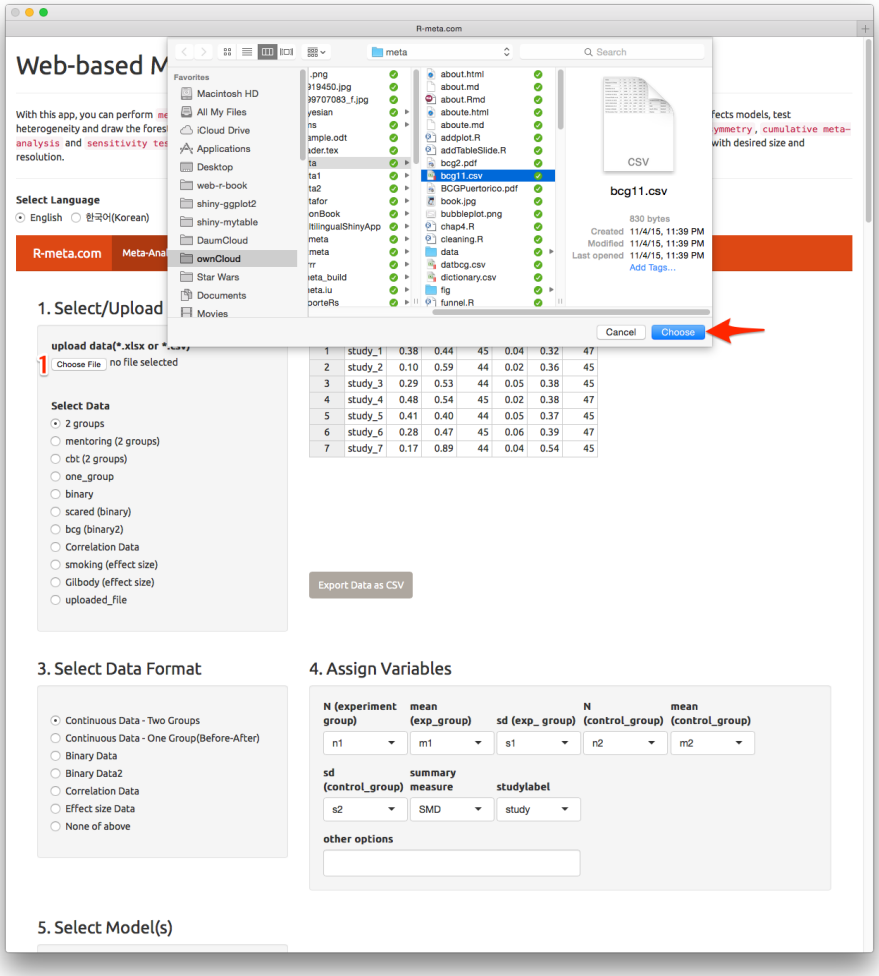
Chapter 2

Analyze Your Own Data

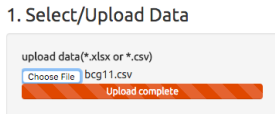
In this chapter, I will discuss how to upload your own data to the `web-based meta-analysis` app and edit the data. Also you will be able to learn how to use sample data as a template.

2.1 Upload data

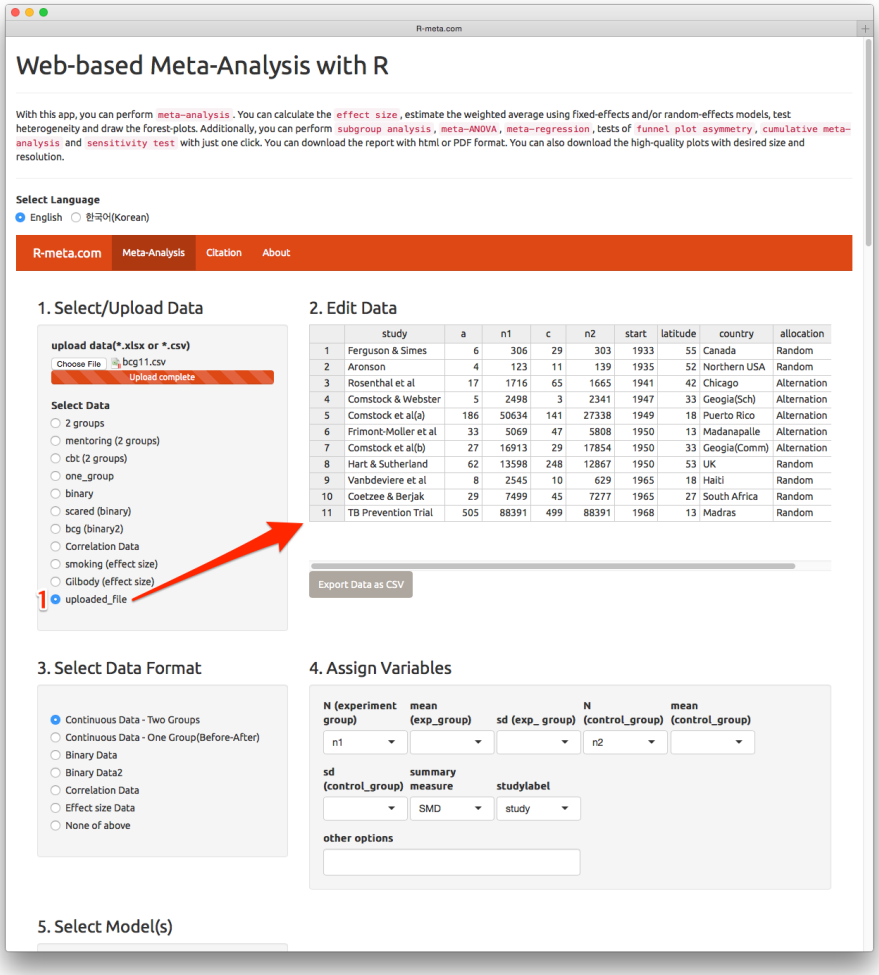
You can upload your own data by clicking the `choose file` button(1). In the popup window, you can select your own data file. A data file with Microsoft excel format(*.xlsx) or comma-separate value format(*.csv) is allowed. Because an excel file contains calculations, functions or macros may cause error, the *.csv format is preferred. You can save an excel file with a* .csv format by "save as. . . " menu on excel. The limitation of file size is 30 MB. After selection of you data file, press `choose` button(arrow).



After a few seconds, the upload completed.



You should select the uploaded_file(1) among the `Select Data` radio buttons. Your file is displayed at `Edit Data` window.



2.2 Edit data

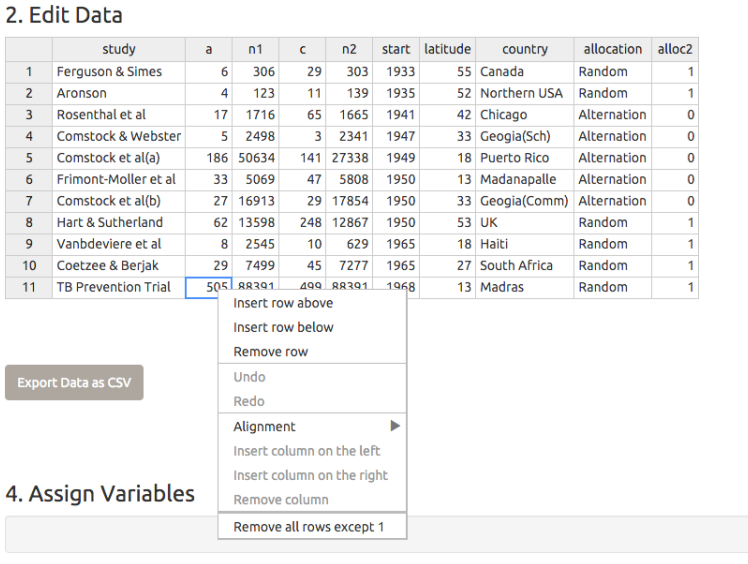
You can edit your data by click a cell in the table. You can use your data table as a spreadsheet.

2. Edit Data

	study	a	n1	c	n2	start	latitude	country	allocation	alloc2
1	Ferguson & Simes	6	306	29	303	1933	55	Canada	Random	1
2	Aronson	4	123	11	139	1935	52	Northern USA	Random	1
3	Rosenthal et al	17	1716	65	1665	1941	42	Chicago	Alternation	0
4	Comstock & Webster	5	2498	3	2341	1947	33	Geogia(Sch)	Alternation	0
5	Comstock et al(a)	186	50634	141	27338	1949	18	Puerto Rico	Alternation	0
6	Frimont-Moller et al	33	5069	47	5808	1950	13	Madanapalle	Alternation	0
7	Comstock et al(b)	27	16913	29	17854	1950	33	Geogia(Comm)	Alternation	0
8	Hart & Sutherland	62	13598	248	12867	1950	53	UK	Random	1
9	Vanbdeviere et al	8	2545	10	629	1965	18	Haiti	Random	1
10	Coetzee & Berjak	29	7499	45	7277	1965	27	South Africa	Random	1
11	TB Prevention Trial	505	88391	499	88391	1968	13	Madras	Random	1

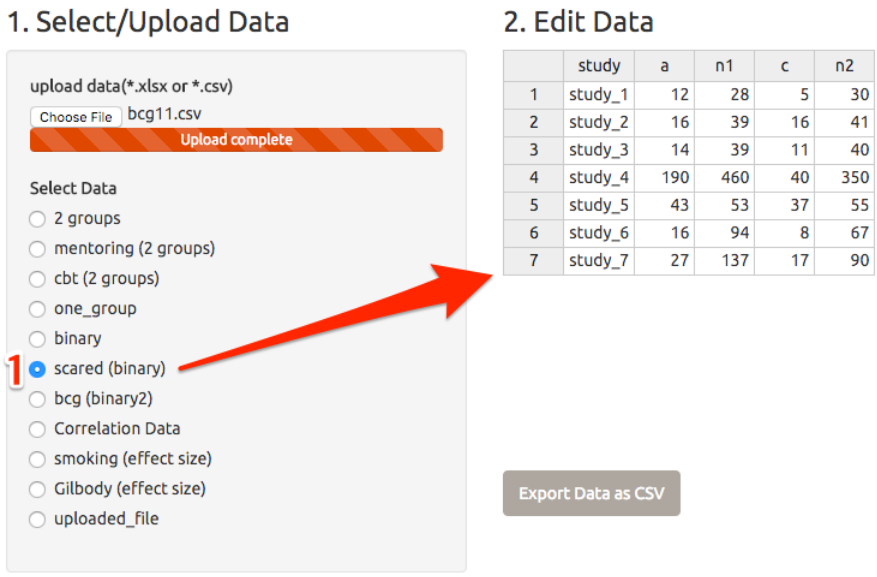
2.3 Insert/remove row

By right click the table, you can insert row or remove row.

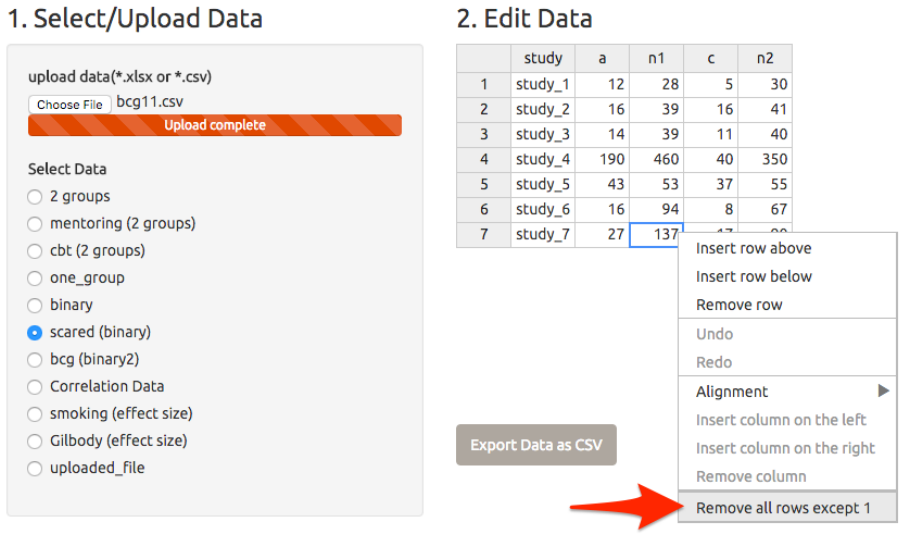


2.4 Use sample data as a template

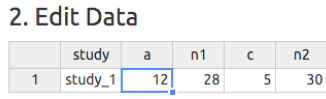
You can use a sample data as a template. As a example, please choose the `scared(binary)`(1) among the `Select Data` radio buttons.



You can choose `Remove all rows except 1`(arrow) after right click of the table.



All rows are removed except the first row.



You are not allowed remove the first row, but you can edit the data. If you want to change the structure of your data, you should make a data file with the other program and upload it.

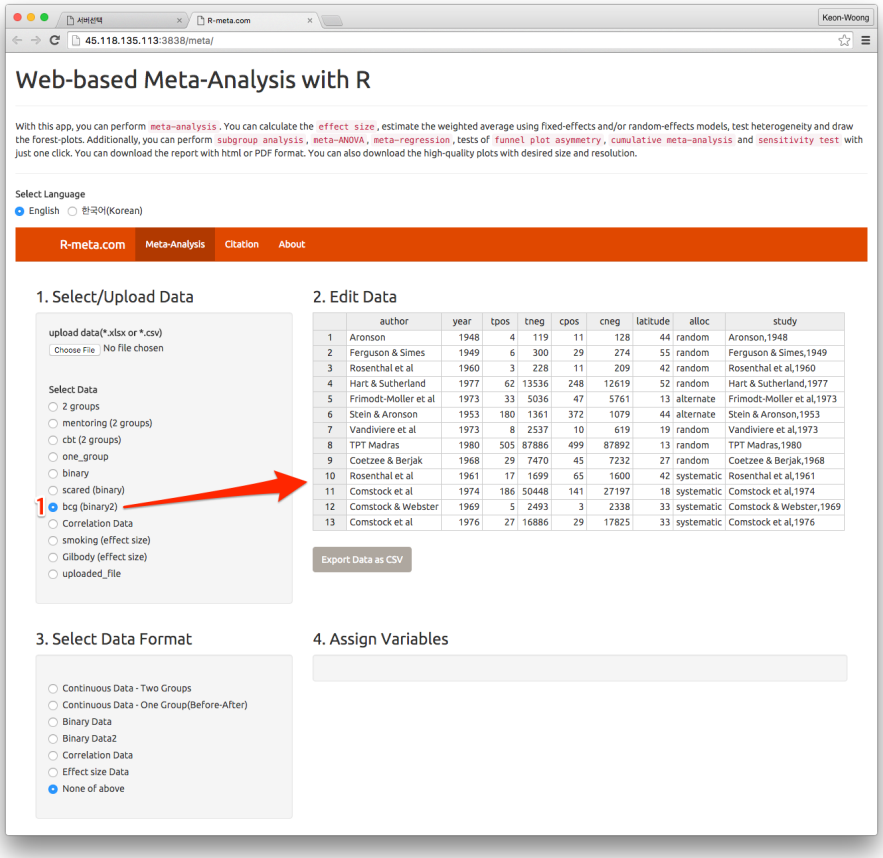
Chapter 3

A Complete Example - Meta-analysis of BCG trials

In this chapter, I will show you how to perform subgroup analysis, meta-regression, publication bias analysis using funnel plot, cumulative meta-analysis, sensitivity test and download report as a pdf file or as a powerpoint file

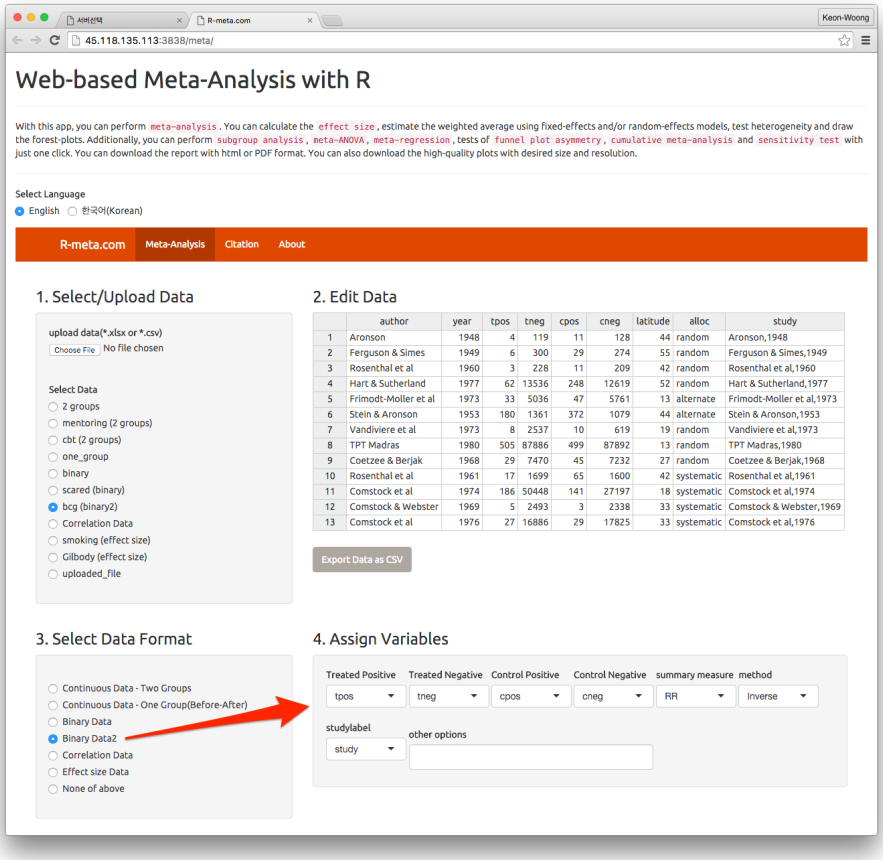
3.1 Select Data

Please choose the `bcg(binary2)`(1) among the `Select Data` radio buttons. The data will be displayed(arrow).



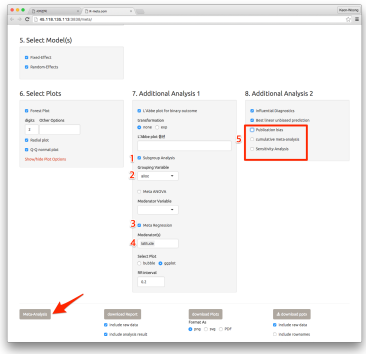
3.2 Select Data Format

Please choose the `Binary Data2` among the `Select Data Format` radio buttons. The variables will be assigned(arrow).



3.3 Select Additional Analysis

To perform subgroup analysis, select the `subgroup analysis` checkbox(1) and select `alloc` as a `Grouping Variable`(2). To perform a meta-analysis, select the `Meta Regression` checkbox(5) and select `latitude` as a `Moderator(s)`(4). To perform the publication bias test, cumulative meta-analysis and sensitivity test, select the checkboxes(5) and press the `Meta-analysis` button(arrow).



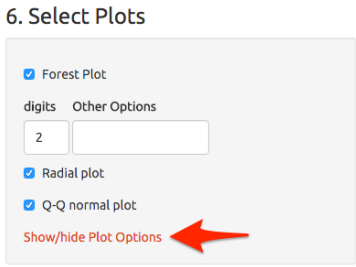
Chapter 4

Customize Plot Options

In this chapter, I will show you how to customize the plots.

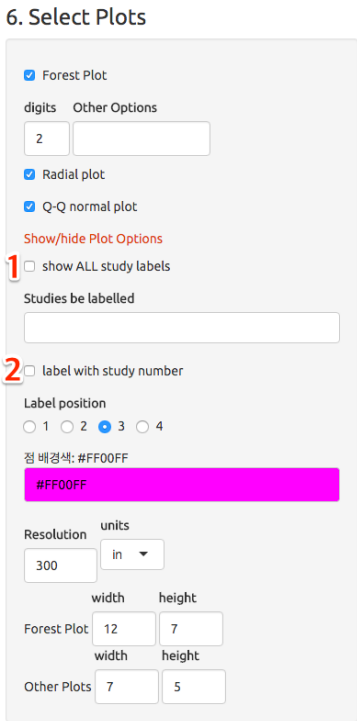
4.1 Show/hide Plot Options

You can customize your plot options by click the `Show/hide Plot options`.



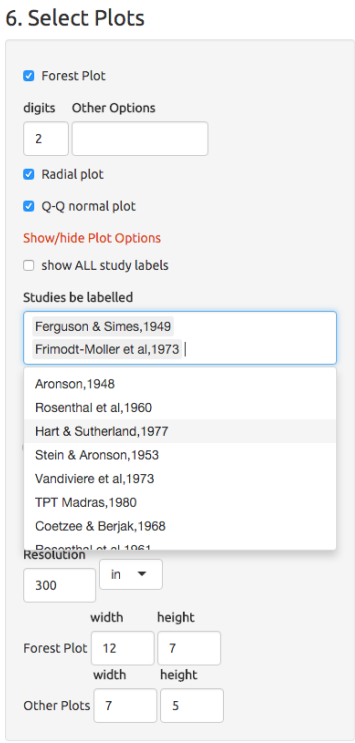
4.1.1 show all study labels

You can choose whether or not all study labels be showed(1). You can label your studies by name or by study number(2. You can adjust the plot resolution and width and height of plot.

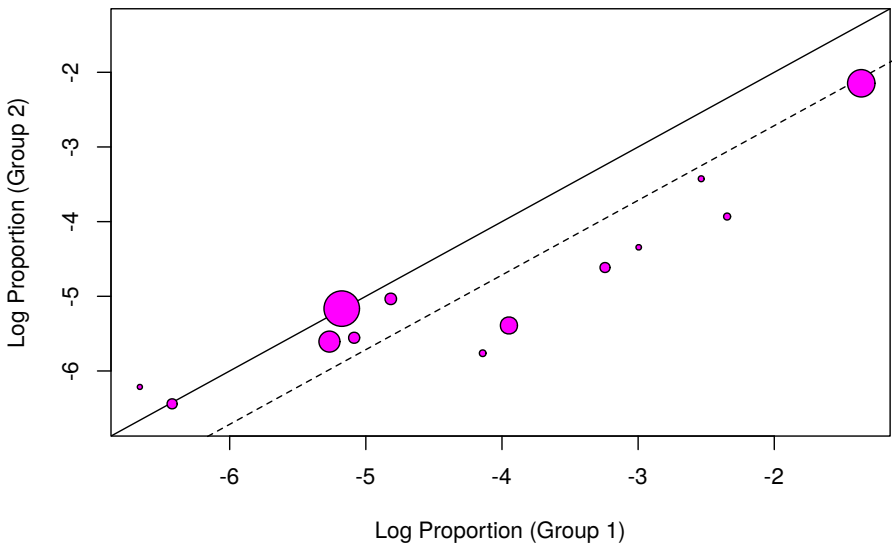


4.1.2 select studies be labelled

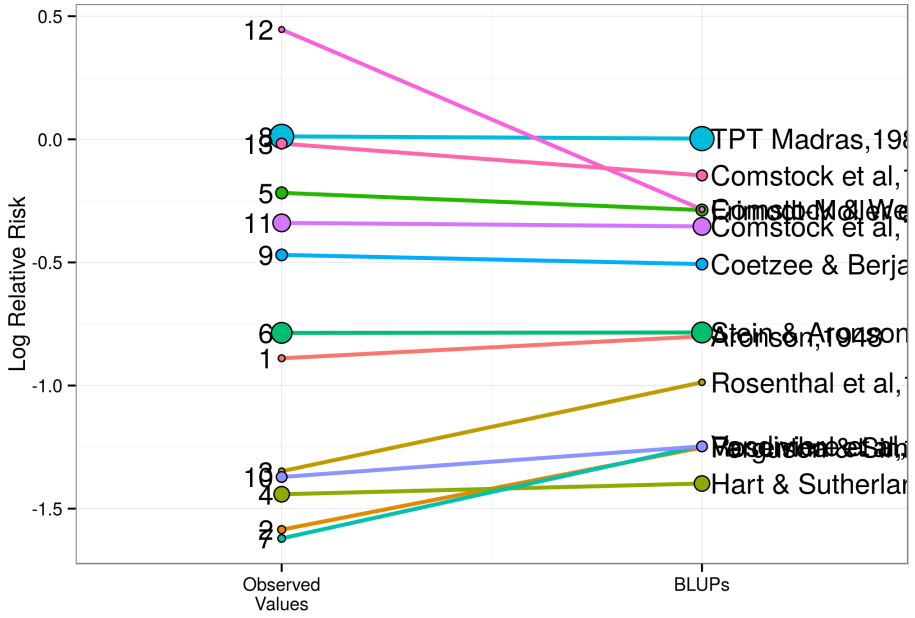
You can select some studies instead of labelling all studies.



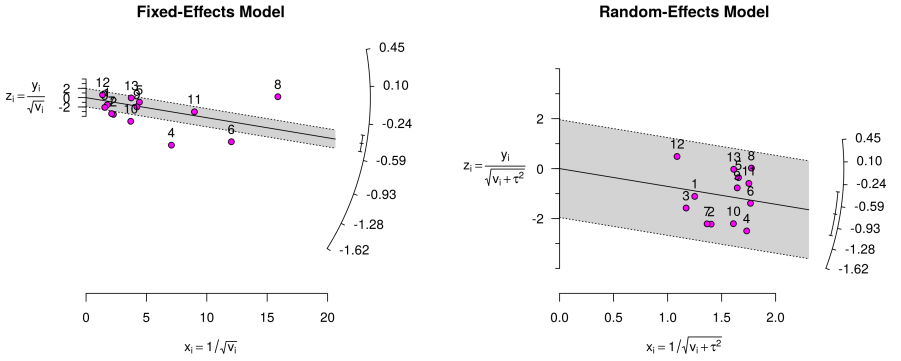
4.1.2.1 L'Abbe plot: no label



4.1.2.2 BLUP plot: all label



4.1.2.3 radial plot: all label with number



4.1.2.4 Meta-regression plot: some label