

Qualval: Test for Qualitative Interactions from Summary Statistics

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1 Introduction

This is a short tutorial on using the “qualval” function. The “qualval” function is just like the “qualint” function, which is used to test for qualitative interactions between treatment effects and patient subgroups. However, compared to the “qualint” function, the “qualval” function could be used for any types of data and any types of analysis model since it is based on summary statistics of treatment effects instead of the data. It also includes two testing methods: Interval Based Graphical Approach and Gail Simon Likelihood Ratio Test, among which the IBGA is the default.

2 Example

First, let’s install the “QualInt” package.

```
> library("QualInt")
```

The function “qualval” output the same results as the function “qualint”, which is also a S3 object called “qualint”.

```
> test9 <- qualval(effect = c(1.0, 0.5, -2.0),  
+                 se = c(0.86, 0.64, 0.32))  
> print(test9)
```

Call:

```
qualval(effect = c(1, 0.5, -2), se = c(0.86, 0.64, 0.32))
```

Type:

unknown

Estimating Results for treatment effects:

	Estimate	Std. Error	Lower CI	Upper CI
1	1.0	0.86	-0.6856	2.686
2	0.5	0.64	-0.7544	1.754
3	-2.0	0.32	-2.6272	-1.373

Test:
IBGA

p-value:
0.2299

Power:
0.3088

Alpha:
0.05

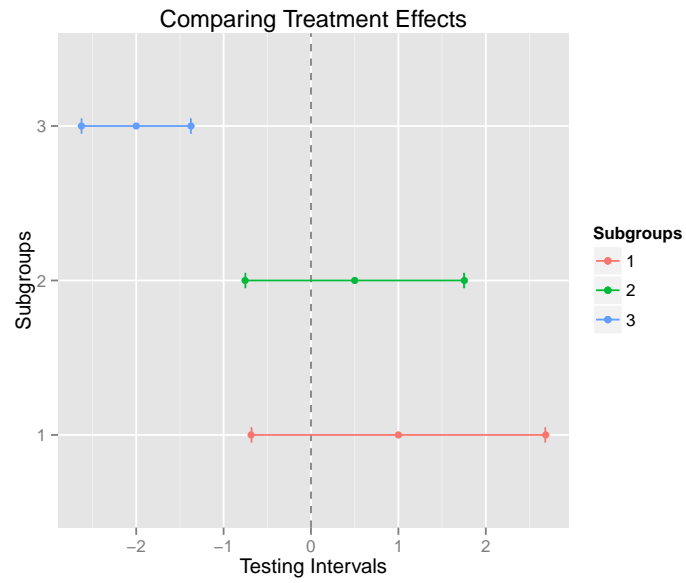
> *ibga(test9)*

	Estimate	Std. Error	Lower CI	Upper CI	Lower TI	Upper TI
1	2.7183	2.33772	0.50380	14.6665	0.50617	14.598
2	1.6487	1.05518	0.47030	5.7798	0.47195	5.760
3	0.1353	0.04331	0.07228	0.2534	0.07241	0.253

> *summary(test9)*

	Length	Class	Mode
call	3	-none-	call
n	0	-none-	NULL
type	1	-none-	character
alpha	1	-none-	numeric
treatment	1	-none-	character
reference	1	-none-	character
nsbp	1	-none-	numeric
subgroup	3	-none-	character
scale	1	-none-	character
effect	3	-none-	numeric
se	3	-none-	numeric
LowerCI	3	-none-	numeric
UpperCI	3	-none-	numeric
test	1	-none-	character
index	1	-none-	numeric
LowerTI	3	-none-	numeric
UpperTI	3	-none-	numeric
pvalue	1	-none-	numeric
power	1	-none-	numeric
nobs	0	-none-	NULL
missing	0	-none-	NULL

> *plot(test9)*



Since the two functions output the same object as the result, all the functions available for the “qualint” object could also be used here, like `plot`, `print`, `coef` and `ibga`.