Elderly Paper - data analysis

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# Loading the data

Registered cases 11596

Cases after getting rid of some low-reporting countries 11472

Cases with severity of >= II 10520

Children 2861, adults 7659,

Adults 18-40 = 2517 Adults 41-64 = 3896 Elderly >=65 = 1246

##   
## elderly middle young  
## female 668 2172 1537  
## male 578 1724 980

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm$b\_sex and d.rm$ages   
##   
## elderly middle young  
## elderly - - -   
## middle 0.2 - -   
## young 0.000044 0.000058 -   
##   
## P value adjustment method: holm

# Atopic dermatitis

##   
## elderly middle young  
## atopic 207 928 876  
## non-atopic 1039 2968 1641

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm$d\_410\_atopic and d.rm$ages   
##   
## elderly middle young  
## elderly - - -   
## middle 0.00000035 - -   
## young < 0.0000000000000002 < 0.0000000000000002 -   
##   
## P value adjustment method: bonferroni

# Cardiovascular disease

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm$q\_410\_cardio\_cur[d.rm$q\_410\_cardio\_cur %in% c("no", "yes")] %>% and d.rm$ages[d.rm$q\_410\_cardio\_cur %in% c("no", "yes")] { and d.rm$ages[d.rm$q\_410\_cardio\_cur %in% c("no", "yes")] as.character(.) and d.rm$ages[d.rm$q\_410\_cardio\_cur %in% c("no", "yes")] } and d.rm$ages[d.rm$q\_410\_cardio\_cur %in% c("no", "yes")]   
##   
## elderly middle young  
## elderly - - -   
## middle <0.0000000000000002 - -   
## young <0.0000000000000002 <0.0000000000000002 -   
##   
## P value adjustment method: holm

# Urticaria

##   
## elderly middle young  
## no 1176 3604 2289  
## yes 14 64 57  
## unknown 56 228 171

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.221 - -   
## young 0.051 0.160 -   
##   
## P value adjustment method: holm

# Mastocytosis

##   
## elderly middle young  
## no 1150 3552 2313  
## yes 40 116 33  
## unknown 56 228 171

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.80762 - -   
## young 0.00037 0.000084 -   
##   
## P value adjustment method: holm

# Thyroid disease

##   
## elderly middle young  
## no 1011 3276 2215  
## yes 179 392 131  
## unknown 56 228 171

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.00006293815 - -   
## young < 0.0000000000000002 0.00000000002 -   
##   
## P value adjustment method: holm

# Physical exercise

##   
## elderly  
## no 824  
## mild eg. walking 117  
## moderate eg. vigorous housework or gardening 89  
## vigorous eg. running, heavy manual work, competitive sport 79  
## unknown 137  
##   
## middle young  
## no 2421 1508  
## mild eg. walking 386 260  
## moderate eg. vigorous housework or gardening 343 192  
## vigorous eg. running, heavy manual work, competitive sport 299 245  
## unknown 446 312

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm$q\_4212\_exercise\_intensity and d.rm$ages   
##   
## elderly middle young  
## elderly - - -   
## middle 0.0846 - -   
## young 0.0027 0.0241 -   
##   
## P value adjustment method: holm

# Psychological stress

##   
## elderly middle young  
## no(unlikely) 1154 3622 2323  
## yes(likely) 92 273 194

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm$q\_422\_stress and d.rm$ages   
##   
## elderly middle young  
## elderly - - -   
## middle 1.00 - -   
## young 1.00 0.95 -   
##   
## P value adjustment method: holm

# Alcohol

##   
## elderly middle young  
## no 923 2798 1817  
## yes 53 194 165  
## unknown 270 904 534

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.268 - -   
## young 0.017 0.033 -   
##   
## P value adjustment method: holm

# Menstruation

##   
## elderly middle young  
## no 551 1153 627  
## yes 0 30 70  
## unknown 84 946 838  
## menopause 33 43 2

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.00035 - -   
## young 0.00000000000015 0.00000000001045 -   
##   
## P value adjustment method: holm

This variable should not be taken into account I think. The elderly group does not have any menstrruation…

# infection

##   
## elderly middle young  
## no 1155 3565 2259  
## yes 35 103 87  
## unknown 56 228 171

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.89 - -   
## young 0.56 0.18 -   
##   
## P value adjustment method: holm

# repeated reaction

##   
## elderly middle young  
## no 786 2365 1488  
## yes 339 1154 748  
## unknown 121 377 280

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.21 - -   
## young 0.17 0.62 -   
##   
## P value adjustment method: holm

# Elicitors

## Total

## [[1]]  
## [1] "q\_310\_trigger"  
##   
## [[2]]  
##   
## elderly middle young  
## no 55 201 202  
## yes 985 2992 1751  
## reasonable suspicion 206 703 564  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.24 - -   
## young 0.00000000357 0.00000000039 -   
##   
## P value adjustment method: holm

## Elicitor known

## [[1]]  
## [1] "elicitor\_known"  
##   
## [[2]]  
##   
## elderly middle young  
## no 261 904 766  
## yes 985 2992 1751  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.11 - -   
## young 0.00000000201 0.00000000043 -   
##   
## P value adjustment method: holm

## Elicitor suspected

## [[1]]  
## [1] "elicitor\_suspected"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1040 3193 1953  
## yes 206 703 564  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.24 - -   
## young 0.000063 0.000063 -   
##   
## P value adjustment method: holm

## Drugs

## [[1]]  
## [1] "elicitor\_drug"  
##   
## [[2]]  
##   
## elderly middle young  
## no 924 3013 2015  
## yes 322 883 502  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.02338 - -   
## young 0.00014 0.02132 -   
##   
## P value adjustment method: holm

### analgesics

## [[1]]  
## [1] "elicitor\_analg"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1126 3557 2323  
## yes 120 339 194  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.35 - -   
## young 0.16 0.35 -   
##   
## P value adjustment method: holm

### antibiotics

## [[1]]  
## [1] "elicitor\_anty"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1151 3637 2357  
## yes 95 259 160  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.52 - -   
## young 0.50 0.68 -   
##   
## P value adjustment method: holm

### Local anesthetics

## [[1]]  
## [1] "elicitor\_LA"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1223 3817 2472  
## yes 23 79 45  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 1 - -   
## young 1 1 -   
##   
## P value adjustment method: holm

### x-ray (contrast agent)

## [[1]]  
## [1] "elicitor\_contrast"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1218 3845 2505  
## yes 28 51 12  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.027 - -   
## young 0.0000044 0.003 -   
##   
## P value adjustment method: holm

### PPI

## [[1]]  
## [1] "elicitor\_ppi"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1236 3876 2499  
## yes 10 20 18  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 1 - -   
## young 1 1 -   
##   
## P value adjustment method: holm

### Cardiovascular drugs

Here Only 1 patient in the youg adults group was positive for the cardio drugs.

## [[1]]  
## [1] "elicitor\_cvd"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1240 3888 2516  
## yes 6 8 1  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.330 - -   
## young 0.032 0.330 -   
##   
## P value adjustment method: holm

## Insects

## [[1]]  
## [1] "elicitor\_insects"  
##   
## [[2]]  
##   
## elderly middle young  
## no 547 1809 1594  
## yes 699 2087 923  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.13 - -   
## young <0.0000000000000002 <0.0000000000000002 -   
##   
## P value adjustment method: holm

### Yellow jacket

## [[1]]  
## [1] "elicitor\_yj"  
##   
## [[2]]  
##   
## elderly middle young  
## no 744 2371 1891  
## yes 502 1525 626  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.49 - -   
## young <0.0000000000000002 <0.0000000000000002 -   
##   
## P value adjustment method: holm

### Bee

## [[1]]  
## [1] "elicitor\_bee"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1142 3553 2289  
## yes 104 343 228  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 1 - -   
## young 1 1 -   
##   
## P value adjustment method: holm

### Hornet

## [[1]]  
## [1] "elicitor\_hornet"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1182 3761 2475  
## yes 64 135 42  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.0099 - -   
## young 0.0000000082 0.0000510859 -   
##   
## P value adjustment method: holm

## Food

## [[1]]  
## [1] "elicitor\_food"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1109 3273 1725  
## yes 137 623 792  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.000019 - -   
## young < 0.0000000000000002 < 0.0000000000000002 -   
##   
## P value adjustment method: holm

### wheat

## [[1]]  
## [1] "elicitor\_wheat"  
##   
## [[2]]  
##   
## elderly middle young  
## no 120 528 691  
## yes 17 95 101  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm.f[selector, x] and d.rm.f$ages[selector]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.95 - -   
## young 1.00 0.61 -   
##   
## P value adjustment method: holm

### hazelnut

## [[1]]  
## [1] "elicitor\_HN"  
##   
## [[2]]  
##   
## elderly middle young  
## no 121 579 739  
## yes 16 44 53  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm.f[selector, x] and d.rm.f$ages[selector]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.20 - -   
## young 0.18 0.87 -   
##   
## P value adjustment method: holm

### soy

## [[1]]  
## [1] "elicitor\_soy"  
##   
## [[2]]  
##   
## elderly middle young  
## no 130 571 757  
## yes 7 52 35  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm.f[selector, x] and d.rm.f$ages[selector]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.5377 - -   
## young 0.8915 0.0098 -   
##   
## P value adjustment method: holm

### celery

## [[1]]  
## [1] "elicitor\_celery"  
##   
## [[2]]  
##   
## elderly middle young  
## no 129 582 752  
## yes 8 41 40  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm.f[selector, x] and d.rm.f$ages[selector]   
##   
## elderly middle young  
## elderly - - -   
## middle 1.00 - -   
## young 1.00 0.79 -   
##   
## P value adjustment method: holm

### shellfish

## [[1]]  
## [1] "elicitor\_shellfish"  
##   
## [[2]]  
##   
## elderly middle young  
## no 119 563 714  
## yes 18 60 78  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm.f[selector, x] and d.rm.f$ages[selector]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.85 - -   
## young 0.85 0.96 -   
##   
## P value adjustment method: holm

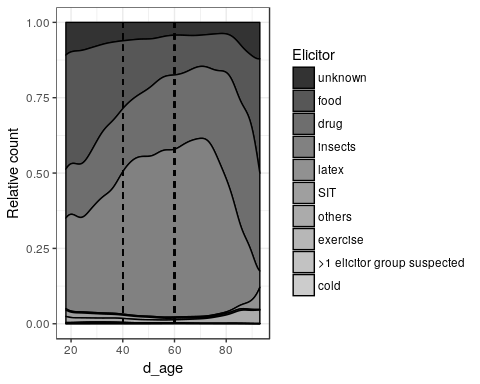
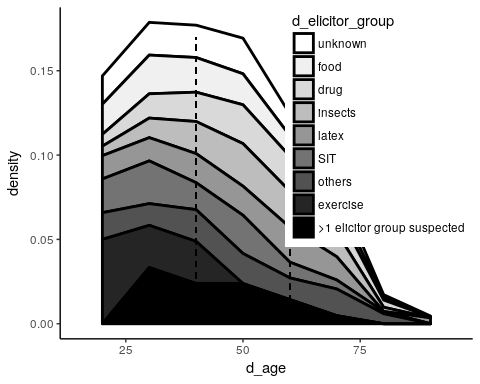
### peanut

## [[1]]  
## [1] "elicitor\_peanut"  
##   
## [[2]]  
##   
## elderly middle young  
## no 136 601 733  
## yes 1 22 59  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm.f[selector, x] and d.rm.f$ages[selector]   
##   
## elderly middle young  
## elderly - - -   
## middle 0.1450 - -   
## young 0.0113 0.0072 -   
##   
## P value adjustment method: holm

## Immunotherapy (SIT)

## [[1]]  
## [1] "elicitor\_SIT"  
##   
## [[2]]  
##   
## elderly middle young  
## no 1241 3864 2479  
## yes 5 32 38  
##   
## [[3]]  
##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: d.rm[selector, x] %>% as.character and d.rm$ages[selector] %>% as.character   
##   
## elderly middle young  
## elderly - - -   
## middle 0.182 - -   
## young 0.013 0.027 -   
##   
## P value adjustment method: holm

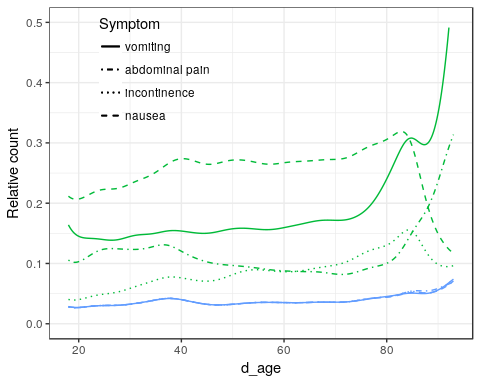
# Plots



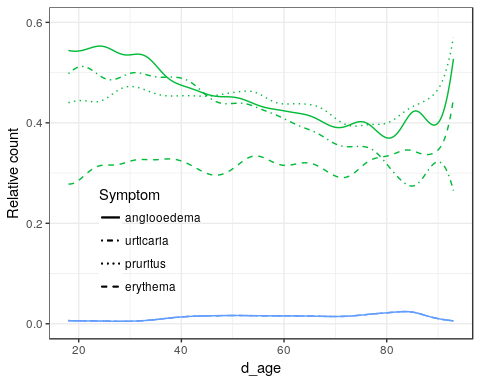
So we can do it - the question now is what do we want to display? Food? or any other variables here that may be of interest?

Second plot - symptoms

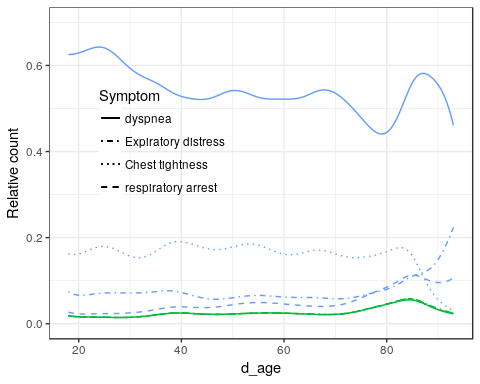
## Gastrointestinal



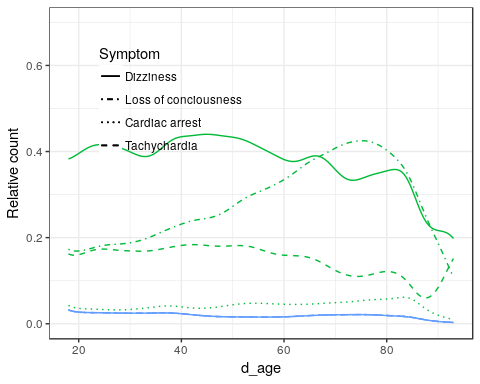
## Skin



## Respiratory



## Cardiac



# Biphasic risk

left Biphasic, top - Hypotension as a symptom. Alle cases, no age differentiation:

##   
## no yes unknown  
## -9 827 548 0  
## no 3323 2046 115  
## yes 147 107 3  
## unknown 345 181 17

## $elderly  
## Number of cases in table: 921   
## Number of factors: 2   
## Test for independence of all factors:  
## Chisq = 1.6095, df = 2, p-value = 0.4472  
## Chi-squared approximation may be incorrect  
##   
## $middle  
## Number of cases in table: 2901   
## Number of factors: 2   
## Test for independence of all factors:  
## Chisq = 8.367, df = 2, p-value = 0.01524  
## Chi-squared approximation may be incorrect  
##   
## $young  
## Number of cases in table: 1919   
## Number of factors: 2   
## Test for independence of all factors:  
## Chisq = 0.8995, df = 2, p-value = 0.6378  
## Chi-squared approximation may be incorrect

Unknown elicitor showed relevant meanig that unknown trigger-cases were more often connected with biphasic reactions

##   
## no yes  
## no 319 4116  
## yes 28 171

##   
## no yes  
## no 0.91930836 0.96011197  
## yes 0.08069164 0.03988803

## Number of cases in table: 4634   
## Number of factors: 2   
## Test for independence of all factors:  
## Chisq = 13.004, df = 1, p-value = 0.0003108

# e\_420\_CoF\_incl\_infect

##   
## elderly middle young  
## no 511 2469 1890  
## yes 735 1427 627

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle <0.0000000000000002 - -   
## young <0.0000000000000002 <0.0000000000000002 -   
##   
## P value adjustment method: holm

# e\_423\_five

##   
## elderly middle young  
## no 576 2917 2377  
## yes 670 979 140

##   
## Pairwise comparisons using Pearson's Chi-squared tests   
##   
## data: val[which(val %in% c("no", "yes"))] %>% as.character() and d.rm$ages[which(val %in% c("no", "yes"))]   
##   
## elderly middle young  
## elderly - - -   
## middle <0.0000000000000002 - -   
## young <0.0000000000000002 <0.0000000000000002 -   
##   
## P value adjustment method: holm