reportRx TestFile

17 December, 2021

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# Introduction

Citations can be made like this for R packages ([Bel and Xu 2013](#ref-R-reportRx)), or ([R Core Team 2021](#ref-R-base)) for the R language itself. Other citations must match those found in your master bibfile. See ?rmdBibfile.

First, make some changes to the lung data (cancer in the newer version of survival)

data(cancer, package='survival')  
lung <- cancer  
  
lung <- lung %>%  
 mutate(  
 Status=factor(status-1),  
 Sex = factor(sex,labels = c('Male','Female')),  
 AgeGroup = cut(age, breaks=seq(0,100,10)),  
 OneLevelFactor = factor(x='one level')  
 ) %>%  
 arrange(Status)  
  
lung$x\_null = rnorm(nrow(lung))  
lung$x\_pred = c(rnorm(sum(lung$Status==0),0,1),  
 rnorm(sum(lung$Status==1),1,1))  
set.seed(1)  
test\_data = tibble(  
 y= rnorm(1000),  
 x0= geoR::rboxcox(1000, lambda=.5, mean=10, sd=2),  
 x1= x0+y  
)

# 1 Numbered Heading

## 1.1 Test covsum

Test Special characters in caption 80% $100.

|  |  |
| --- | --- |
| Covariate | n=228 |
| Status |  |
| 0 | 63 (28) |
| 1 | 165 (72) |
| Sex |  |
| Male | 138 (61) |
| Female | 90 (39) |
| age |  |
| Mean (sd) | 62.4 (9.1) |
| Median (Min,Max) | 63 (39,82) |
| AgeGroup |  |
| (0,10] | 0 (0) |
| (10,20] | 0 (0) |
| (20,30] | 0 (0) |
| (30,40] | 3 (1) |
| (40,50] | 23 (10) |
| (50,60] | 68 (30) |
| (60,70] | 88 (39) |
| (70,80] | 44 (19) |
| (80,90] | 2 (1) |
| (90,100] | 0 (0) |
| meal cal |  |
| Mean (sd) | 928.8 (402.2) |
| Median (Min,Max) | 975 (96,2600) |
| Missing | 47 |
| OneLevelFactor |  |
| one level | 228 (100) |

Summary sample statistics by Sex.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Covariate | Full Sample (n=228) | Male (n=138) | Female (n=90) | p-value |
| **Status** |  |  |  | **<0.001** |
| 0 | 63 (28) | 26 (19) | 37 (41) |  |
| 1 | 165 (72) | 112 (81) | 53 (59) |  |
| age |  |  |  | 0.057 |
| Mean (sd) | 62.4 (9.1) | 63.3 (9.1) | 61.1 (8.8) |  |
| Median (Min,Max) | 63 (39,82) | 64 (39,82) | 61 (41,77) |  |
| AgeGroup |  |  |  | 0.13 |
| (0,10] | 0 (0) | 0 (0) | 0 (0) |  |
| (10,20] | 0 (0) | 0 (0) | 0 (0) |  |
| (20,30] | 0 (0) | 0 (0) | 0 (0) |  |
| (30,40] | 3 (1) | 3 (2) | 0 (0) |  |
| (40,50] | 23 (10) | 11 (8) | 12 (13) |  |
| (50,60] | 68 (30) | 35 (25) | 33 (37) |  |
| (60,70] | 88 (39) | 58 (42) | 30 (33) |  |
| (70,80] | 44 (19) | 29 (21) | 15 (17) |  |
| (80,90] | 2 (1) | 2 (1) | 0 (0) |  |
| (90,100] | 0 (0) | 0 (0) | 0 (0) |  |
| **meal cal** |  |  |  | **0.022** |
| Mean (sd) | 928.8 (402.2) | 980.5 (413.3) | 840.7 (369.1) |  |
| Median (Min,Max) | 975 (96,2600) | 1025 (169,2600) | 925 (96,2450) |  |
| Missing | 47 | 24 | 23 |  |
| OneLevelFactor |  |  |  |  |
| one level | 228 (100) | 138 (100) | 90 (100) |  |

Make sure it still works when there are empty levels

In a covariate:

Summary sample statistics by Sex.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Covariate | Full Sample (n=228) | Male (n=138) | Female (n=90) | p-value |
| **Status** |  |  |  | **<0.001** |
| 0 | 63 (28) | 26 (19) | 37 (41) |  |
| 1 | 165 (72) | 112 (81) | 53 (59) |  |
| age |  |  |  | 0.057 |
| Mean (sd) | 62.4 (9.1) | 63.3 (9.1) | 61.1 (8.8) |  |
| Median (Min,Max) | 63 (39,82) | 64 (39,82) | 61 (41,77) |  |
| AgeGroup |  |  |  | 1 |
| (0,10] | 0 (0) | 0 (0) | 0 (0) |  |
| (10,20] | 0 (0) | 0 (0) | 0 (0) |  |
| (20,30] | 0 (0) | 0 (0) | 0 (0) |  |
| (30,40] | 3 (2) | 3 (2) | 0 (0) |  |
| (40,50] | 11 (8) | 11 (8) | 0 (0) |  |
| (50,60] | 35 (25) | 35 (25) | 0 (0) |  |
| (60,70] | 58 (42) | 58 (42) | 0 (0) |  |
| (70,80] | 29 (21) | 29 (21) | 0 (0) |  |
| (80,90] | 2 (1) | 2 (1) | 0 (0) |  |
| (90,100] | 0 (0) | 0 (0) | 0 (0) |  |
| Missing | 90 | 0 | 90 |  |
| **meal cal** |  |  |  | **0.022** |
| Mean (sd) | 928.8 (402.2) | 980.5 (413.3) | 840.7 (369.1) |  |
| Median (Min,Max) | 975 (96,2600) | 1025 (169,2600) | 925 (96,2450) |  |
| Missing | 47 | 24 | 23 |  |
| OneLevelFactor |  |  |  |  |
| one level | 228 (100) | 138 (100) | 90 (100) |  |

In the main covariate:

Summary sample statistics by Sex.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Covariate | Full Sample (n=138) | Male (n=138) | Female (n=0) | p-value |
| Status |  |  |  | 1 |
| 0 | 26 (19) | 26 (19) | 0 (0) |  |
| 1 | 112 (81) | 112 (81) | 0 (0) |  |
| age |  |  |  |  |
| Mean (sd) | 63.3 (9.1) | 63.3 (9.1) |  |  |
| Median (Min,Max) | 64 (39,82) | 64 (39,82) |  |  |
| AgeGroup |  |  |  | 1 |
| (0,10] | 0 (0) | 0 (0) | 0 (0) |  |
| (10,20] | 0 (0) | 0 (0) | 0 (0) |  |
| (20,30] | 0 (0) | 0 (0) | 0 (0) |  |
| (30,40] | 3 (2) | 3 (2) | 0 (0) |  |
| (40,50] | 11 (8) | 11 (8) | 0 (0) |  |
| (50,60] | 35 (25) | 35 (25) | 0 (0) |  |
| (60,70] | 58 (42) | 58 (42) | 0 (0) |  |
| (70,80] | 29 (21) | 29 (21) | 0 (0) |  |
| (80,90] | 2 (1) | 2 (1) | 0 (0) |  |
| (90,100] | 0 (0) | 0 (0) | 0 (0) |  |
| meal cal |  |  |  |  |
| Mean (sd) | 980.5 (413.3) | 980.5 (413.3) |  |  |
| Median (Min,Max) | 1025 (169,2600) | 1025 (169,2600) |  |  |
| Missing | 24 | 24 | 0 |  |
| OneLevelFactor |  |  |  |  |
| one level | 138 (100) | 138 (100) | 0 (0) |  |

The chi-square is the default setting, unless there are low counts, check that this works properly This should have two Chi-Sq tests:

Summary sample statistics by Sex.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Covariate | Full Sample (n=138) | Male (n=138) | Female (n=0) | p-value | StatTest |
| AgeGroup |  |  |  |  | Chi Sq |
| (0,10] | 0 (0) | 0 (0) | 0 (0) |  |  |
| (10,20] | 0 (0) | 0 (0) | 0 (0) |  |  |
| (20,30] | 0 (0) | 0 (0) | 0 (0) |  |  |
| (30,40] | 3 (2) | 3 (2) | 0 (0) |  |  |
| (40,50] | 11 (8) | 11 (8) | 0 (0) |  |  |
| (50,60] | 35 (25) | 35 (25) | 0 (0) |  |  |
| (60,70] | 58 (42) | 58 (42) | 0 (0) |  |  |
| (70,80] | 29 (21) | 29 (21) | 0 (0) |  |  |
| (80,90] | 2 (1) | 2 (1) | 0 (0) |  |  |
| (90,100] | 0 (0) | 0 (0) | 0 (0) |  |  |
| Status |  |  |  |  | Chi Sq |
| 0 | 26 (19) | 26 (19) | 0 (0) |  |  |
| 1 | 112 (81) | 112 (81) | 0 (0) |  |  |

Here age group should be analysed with a Fisher test:

Summary sample statistics by Sex.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Covariate | Full Sample (n=138) | Male (n=138) | Female (n=0) | p-value | StatTest |
| AgeGroup |  |  |  | 1 | Fisher Exact |
| (0,10] | 0 (0) | 0 (0) | 0 (0) |  |  |
| (10,20] | 0 (0) | 0 (0) | 0 (0) |  |  |
| (20,30] | 0 (0) | 0 (0) | 0 (0) |  |  |
| (30,40] | 3 (2) | 3 (2) | 0 (0) |  |  |
| (40,50] | 11 (8) | 11 (8) | 0 (0) |  |  |
| (50,60] | 35 (25) | 35 (25) | 0 (0) |  |  |
| (60,70] | 58 (42) | 58 (42) | 0 (0) |  |  |
| (70,80] | 29 (21) | 29 (21) | 0 (0) |  |  |
| (80,90] | 2 (1) | 2 (1) | 0 (0) |  |  |
| (90,100] | 0 (0) | 0 (0) | 0 (0) |  |  |
| Status |  |  |  | 1 | Fisher Exact |
| 0 | 26 (19) | 26 (19) | 0 (0) |  |  |
| 1 | 112 (81) | 112 (81) | 0 (0) |  |  |

If you need to run an rm\_ function in a loop, you need to use this structure: Unfortunately, this produces a NULL after each table, which is on the todo list!

pander::panderOptions('knitr.auto.asis', FALSE)  
  
for (v in names(lung)[1:2]){  
 cat("\n")  
 print(rm\_covsum(data=lung,covs=v))  
 cat("\n")  
}

Summary sample statistics.

|  |  |
| --- | --- |
| Covariate | n=228 |
| inst |  |
| Mean (sd) | 11.1 (8.3) |
| Median (Min,Max) | 11 (1,33) |
| Missing | 1 |

NULL

Summary sample statistics.

|  |  |
| --- | --- |
| Covariate | n=228 |
| time |  |
| Mean (sd) | 305.2 (210.6) |
| Median (Min,Max) | 255.5 (5.0,1022.0) |

NULL

pander::panderOptions('knitr.auto.asis', TRUE)

## 1.2 Test plotuv

Figure 1.1 shows the bivariate relationships between the response and covariates. Figure referencing works only when a figure caption is provided in the chunk options. Note that underscores and not allowed in the chunk names, only hyphens.

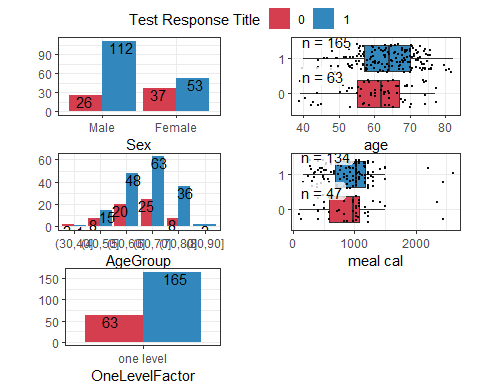


Figure 1.1: Associations between status and covariates in the lung data.

## 1.3 Tests for uvsum

### 1.3.1 Test logistic

Tables 1.1, 1.2 and 1.3 display the logistic regression results with different confidence interval widths. If the document in knit to pdf, the chank-lable option will not be used, instead the name of the chunk will be used in cross-referening. For Word tables the chunk label needs to be added into the function call.

Table 1.1: Univariate analysis of predictors of Status.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | OR(95%CI) | p-value | N |
| **age** | **1.04 (1.00,1.07)** | **0.025** | **228** |
| **Sex** |  | **<0.001** | **228** |
| Male | Reference |  | 138 |
| Female | 0.33 (0.18,0.61) |  | 90 |
| wt.loss | 1.01 (0.98,1.03) | 0.61 | 214 |

Table 1.2: Univariate analysis of predictors of Status.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | OR(90%CI) | p-value | N |
| **age** | **1.04 (1.01,1.07)** | **0.025** | **228** |

Table 1.3: Univariate analysis of predictors of Status.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | OR(99%CI) | p-value | N |
| **age** | **1.04 (0.99,1.08)** | **0.025** | **228** |

### 1.3.2 Test Linear

Univariate analysis of predictors of wt loss.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | Estimate(95%CI) | p-value | N |
| Status |  | 0.61 | 214 |
| 0 | Reference |  | 62 |
| 1 | 1.01 (-2.90,4.92) |  | 152 |
| Sex |  | 0.058 | 214 |
| Male | Reference |  | 128 |
| Female | -3.45 (-7.04,0.14) |  | 86 |
| **ph.ecog** | **3.42 (0.99,5.85)** | **0.006** | **213** |
| meal.cal | -3.3e-03 (-8.3e-03,1.6e-03) | 0.18 | 171 |
| age | 0.05 (-0.14,0.25) | 0.58 | 214 |

Univariate analysis of predictors of wt loss.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | Estimate(90%CI) | p-value | N |
| age | 0.05 (-0.11,0.22) | 0.58 | 214 |

### 1.3.3 Test coxph

Univariate analysis of predictors of survival.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | HR(99%CI) | p-value | N |
| **Sex** |  | **0.001** | **228** |
| Male | Reference |  | 138 |
| Female | 0.59 (0.38,0.90) |  | 90 |
| **ph.ecog** | **1.61 (1.20,2.16)** | **<0.001** | **227** |
| meal.cal | 1.00 (1.00,1.00) | 0.59 | 181 |
| **age** | **1.02 (1.00,1.04)** | **0.042** | **228** |

### 1.3.4 Test crr

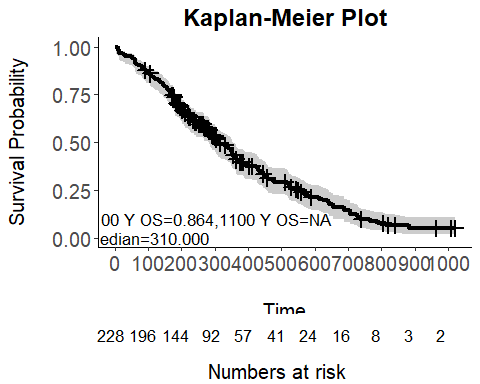
See Appendix

### 1.3.5 Test ordinal

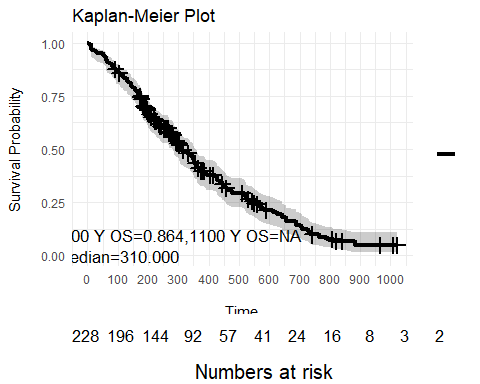
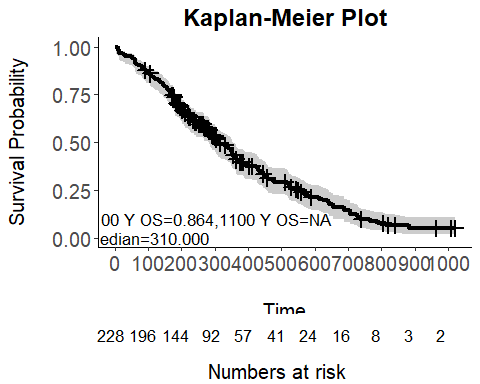
Univariate analysis of predictors of cyl.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | OR(90%CI) | p-value | N |
| **qsec** | **0.43 (0.27,0.68)** | **0.003** | **32** |

# 2 KM plit with confidence intervals



## 2.1 modify a KM plot



# Unnumbered Heading

## 2.2 Test etsum

To get nice output from rm\_etsum you must set results='asis' in the chunk options

otherwise you get this:

##   
## There are 228 patients. There were 165 (72\%) events. The median and range of the follow-up times is 255.5 (5-1022) days. The KM median event time is 310 with 95\% confidence Interval (285,363). The first and last event times occurred at 5 and 883 days respectively. The 365,720 and 883 day probabilities of 'survival' and their 95\% confidence intervals are 41 (34-49),12 (8-20) and 5 (2-12) percent.

when you want this:

**Male:**  There are 138 patients. There were 112 (81%) events. The median and range of the follow-up times is 224 (11-1022) months. The KM median event time is 270 with 95% confidence Interval (212,310). The first and last event times occurred at 5 and 765 months respectively. The 1,2 and 3 month probabilities of ‘survival’ and their 95% confidence intervals are 100 (100-100),100 (100-100) and 100 (100-100) percent.

**Female:**  There are 90 patients. There were 53 (59%) events. The median and range of the follow-up times is 292.5 (5-965) months. The KM median event time is 426 with 95% confidence Interval (348,550). The first and last event times occurred at 11 and 883 months respectively. The 1,2 and 3 month probabilities of ‘survival’ and their 95% confidence intervals are 100 (100-100),100 (100-100) and 100 (100-100) percent.

## 2.3 Test mvsum

Comments from Susie 8 Oct

## 'data.frame': 354 obs. of 7 variables:  
## $ RT\_QA : chr "No" "Yes" "Yes" "Yes" ...  
## $ Chemo\_Yes\_No: chr "No" "No" "No" "Yes" ...  
## $ OS : int 1 0 0 0 0 1 1 0 0 0 ...  
## $ OStime : num 0.698 5.963 3.261 0.739 7.192 ...  
## $ LC : int 2 0 0 0 0 2 2 0 0 0 ...  
## $ LCtime : num 0.698 5.963 3.261 0.739 7.192 ...  
## $ T\_7 : chr "T3" "T1" "T1" "T4" ...

##   
## No Yes   
## 43 311

## [1] "character"

##   
## No Yes   
## 144 210

## [1] "character"

|  |  |  |
| --- | --- | --- |
| Covariate | HR(95%CI) | Global p-value |
| RT\_QA |  | 0.98 |
| No | reference |  |
| Yes | 1.00 (0.63,1.56) |  |
| **Chemo\_Yes\_No** |  | **0.015** |
| No | reference |  |
| Yes | 0.49 (0.27,0.87) |  |

### 2.3.1 Test with glm

Global p-values were adjusted according to the holm method.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | OR(95%CI) | p-value | Global p-value |
| wt.loss | 1.00 (0.97,1.02) |  | 0.83 |
| **Sex** |  |  | **<0.001** |
| Male | reference |  |  |
| Female | 0.31 (0.16,0.58) |  |  |
| AgeGroup |  |  | 0.83 |
| (30,40] | reference |  |  |
| (40,50] | 7.23 (0.53,98.89) | 0.14 |  |
| (50,60] | 8.52 (0.68,106.08) | 0.096 |  |
| (60,70] | 7.93 (0.66,95.39) | 0.1 |  |
| (70,80] | 14.77 (1.13,192.73) | 0.04 |  |
| (80,90] | 1.2e+07 (0e+00,Inf) | 0.99 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | RR(95%CI) | p-value | Global p-value |
| outcome |  |  | 0.064 |
| 1 | reference |  |  |
| 2 | 0.63 (0.43,0.94) | 0.025 |  |
| 3 | 0.75 (0.51,1.09) | 0.13 |  |
| treatment |  |  | 1 |
| 1 | reference |  |  |
| 2 | 1.00 (0.68,1.48) | 1 |  |
| 3 | 1.00 (0.68,1.48) | 1 |  |

### 2.3.2 Test with glm, linear

|  |  |  |
| --- | --- | --- |
| Covariate | Estimate(95%CI) | Global p-value |
| Sex |  | 0.066 |
| Male | reference |  |
| Female | -3.38 (-7.00,0.25) |  |
| age | 0.03 (-0.16,0.23) | 0.75 |

### 2.3.3 Test with lm

Global p-values were adjusted according to the hochberg method.

|  |  |  |
| --- | --- | --- |
| Covariate | Estimate(95%CI) | Global p-value |
| Status |  | 0.99 |
| 0 | reference |  |
| 1 | -0.02 (-4.09,4.05) |  |
| Sex |  | 0.22 |
| Male | reference |  |
| Female | -3.38 (-7.12,0.36) |  |
| age | 0.03 (-0.16,0.23) | 0.99 |

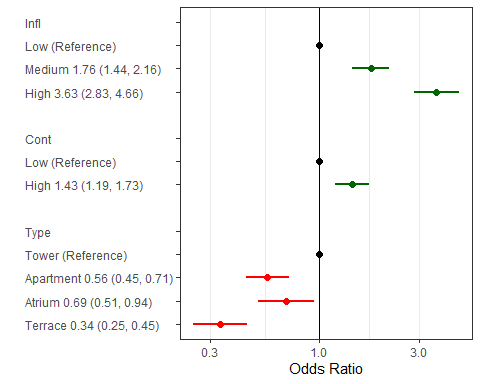
### 2.3.4 Test with lme

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | Estimate(95%CI) | p-value | Global p-value |
| **Time** | **0.36 (0.18,0.54)** |  | **<0.001** |
| **Diet** |  |  | **<0.001** |
| 1 | reference |  |  |
| 2 | 200.67 (151.67,249.66) | <0.001 |  |
| 3 | 252.07 (203.08,301.07) | <0.001 |  |
| **Time:Diet** |  |  | **<0.001** |
| Time:2 | 0.61 (0.29,0.92) | <0.001 |  |
| Time:3 | 0.30 (-0.01,0.61) | 0.061 |  |

### 2.3.5 Test with polr

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | OR(95%CI) | p-value | Global p-value |
| **Infl** |  |  | **<0.001** |
| Low | reference |  |  |
| Medium | 1.76 (1.44,2.16) | <0.001 |  |
| High | 3.63 (2.83,4.66) | <0.001 |  |
| **Type** |  |  | **<0.001** |
| Tower | reference |  |  |
| Apartment | 0.56 (0.45,0.71) | <0.001 |  |
| Atrium | 0.69 (0.51,0.94) | 0.018 |  |
| Terrace | 0.34 (0.25,0.45) | <0.001 |  |
| **Cont** |  |  | **<0.001** |
| Low | reference |  |  |
| High | 1.43 (1.19,1.73) |  |  |

## 2.4 Test forestplot2



## 2.5 Combining Tables with nestTable

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Covariate | OR(95%CI) | Global p-value | N | p-value |
| **Model 1** |  |  |  |  |
| wt.loss | 1.00 (0.98,1.02) | 0.97 | 214 |  |
| Sex |  | <0.001 |  |  |
| Male | reference |  | 138 |  |
| Female | 0.32 (0.17,0.60) |  | 90 |  |
| **Model 2** |  |  |  |  |
| wt.loss | 1.00 (0.97,1.02) | 0.83 | 214 |  |
| Sex |  | <0.001 |  |  |
| Male | reference |  | 138 |  |
| Female | 0.31 (0.16,0.58) |  | 90 |  |
| AgeGroup |  | 0.41 |  |  |
| (30,40] | reference |  | 3 |  |
| (40,50] | 7.23 (0.53,98.89) |  | 23 | 0.14 |
| (50,60] | 8.52 (0.68,106.08) |  | 68 | 0.096 |
| (60,70] | 7.93 (0.66,95.39) |  | 88 | 0.1 |
| (70,80] | 14.77 (1.13,192.73) |  | 44 | 0.04 |
| (80,90] | 1.2e+07 (0e+00,Inf) |  | 2 | 0.99 |

# 3 References

Bel, Ryan Del, and Wei Xu. 2013. *reportRx: Tools for Automatically Generating Reproducible Clinical Report*. <https://CRAN.R-project.org/package=reportRx>.

R Core Team. 2021. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.

# 4 Appendix

Other results can go here.

### 4.0.1 Test crr

Univariate analysis of predictors of survival.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | HR(90%CI) | p-value | N |
| **Sex** |  | **<0.001** | **228** |
| Male | Reference |  | 138 |
| Female | 2.49 (1.64,3.79) |  | 90 |
| **ph.ecog** | **0.54 (0.40,0.72)** | **<0.001** | **227** |
| meal.cal | 1.00 (1.00,1.00) | 0.9 | 181 |
| **age** | **0.97 (0.95,0.99)** | **0.028** | **228** |

Univariate analysis of predictors of survival.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | HR(95%CI) | p-value | N |
| **age** | **0.97 (0.94,1.00)** | **0.028** | **228** |

### 4.0.2 Test boxcox

Univariate analysis of predictors of y.

|  |  |  |  |
| --- | --- | --- | --- |
| Covariate | Estimate(90%CI) | p-value | N |
| x0 | 6.2e-04 (-3.5e-03,4.8e-03) | 0.81 | 1000 |
| **x1** | **7.1e-03 (3e-03,0.01)** | **0.004** | **1000** |

## 4.1 Playing with Global P-values

LRT p-values