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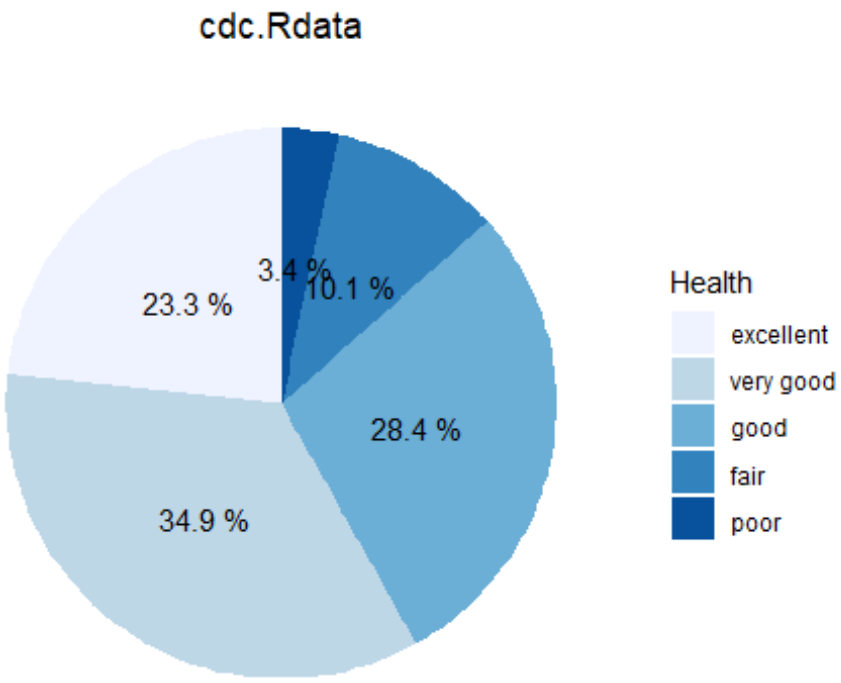
(1) 請問資料中各健康狀狀況的分佈比例例為何？

```
library(ggplot2)
load('cdc.Rdata')
group=levels(cdc$genhlth)
lev=0
for(i in 1:5){lev[i]<-sum(cdc$genhlth==group[i])}
df <- data.frame(group,value = lev)
df$group2 <- ordered(df$group, levels = group)
ggplot(df, aes (x="",y=lev,fill= group2))+
  geom_bar( stat = "identity") +geom_text(aes(label=paste(round(lev/sum
(lev)*100,1),"%")),position=position_stack(vjust=0.5))+
  theme_classic() +
  theme(plot.title = element_text(hjust=.5),
        axis.line = element_blank(),
        axis.text = element_blank(),
        axis.ticks = element_blank()) +
  labs(fill = "Health",x = NULL,y = NULL,title = "cdc.Rdata") +
  scale_fill_brewer(palette = "Blues")+
  coord_polar("y")
```

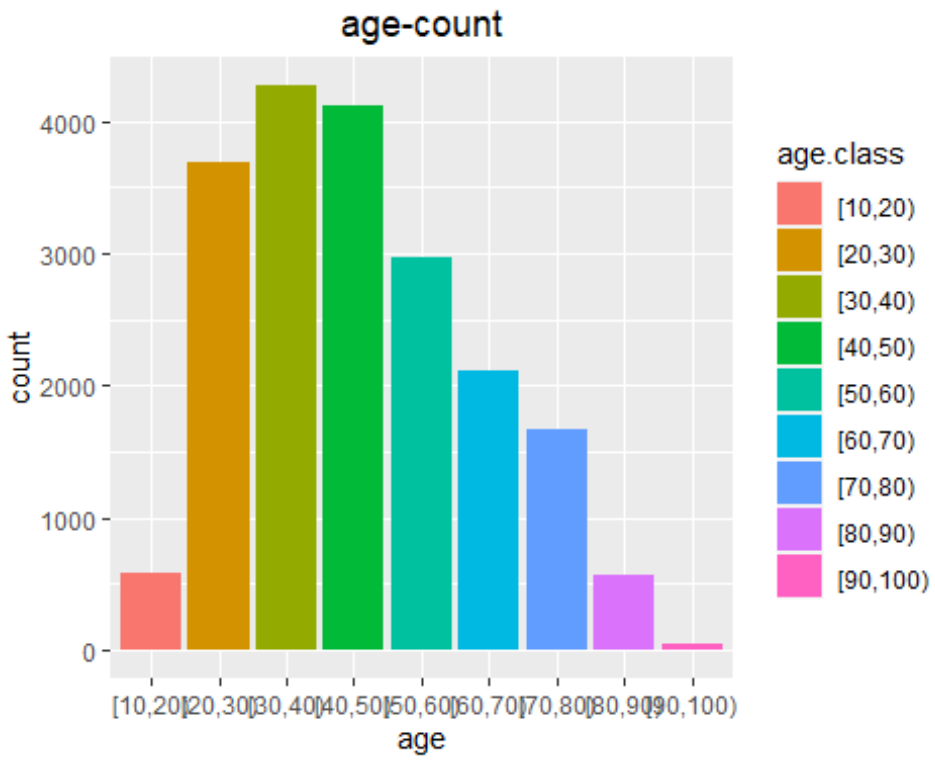


#(2) 請問資料中男女生有抽煙比率各為多少？

```
library('dplyr')

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union

smoke<-cdc %>%
  group_by(gender) %>%
  summarise(ratio= sum(smoke100)/n())
smoke

## # A tibble: 2 x 2
##   gender ratio
##   <fct>  <dbl>
## 1 m      0.525
## 2 f      0.424
```

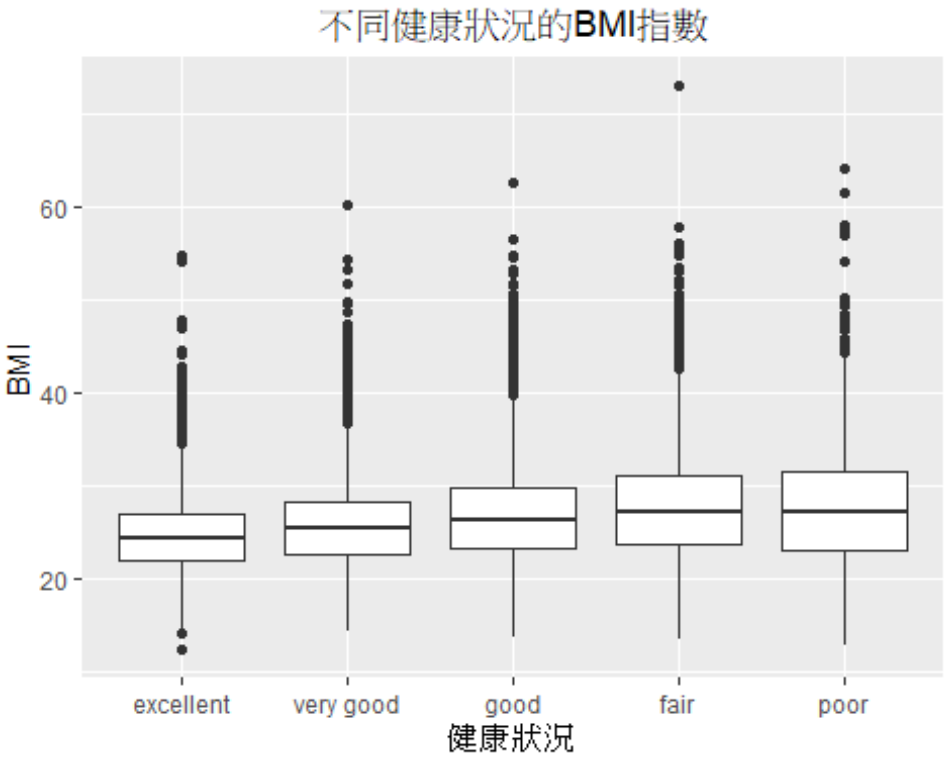
#(3) 請繪製年紀的直方圖。

```
cdc$age.class = cut(cdc$age,seq(0,100,10),right=F)
g = ggplot(cdc,aes(age.class))
g+geom_bar(aes(fill=age.class))+
  scale_x_discrete(name = "age")+
  theme(plot.title = element_text(hjust = 0.5))+
  labs(title = "age-count")
```



#(4) 請繪製不同健康狀況族群 BMI 指數的盒鬚圖。 • 註 1: 英制 bmi 公式 體重 / 身高^2 * 703 • 註 2: 可使用 ggplot2 中 geom_boxplot()函數

```
cdc$BMI<-cdc$weight/cdc$height/cdc$height*703
g <- ggplot(cdc, aes(x = genhlth, y = BMI)) +
        geom_boxplot() +
  ggtitle("不同健康狀況的 BMI 指數")+
  theme(plot.title = element_text(hjust = 0.5))+
  scale_x_discrete(name = "健康狀況")
g
```



#(5) 請問身高、體重、年紀的相關係數為何？

```
corval<-c(cor(cdc$height,cdc$weight),cor(cdc$weight,cdc$age),cor(cdc$he
ight,cdc$age))
items_cor<-c('身高-體重','體重-年紀','身高-年紀')
cortable<-data.frame(items_cor,corval)
cortable
```

```
##   items_cor       corval
## 1 身高-體重  0.555322192
## 2 體重-年紀  0.001608902
## 3 身高-年紀 -0.125181791
```