

Cervical Cancer, preliminary figures analysis (FR,2024)

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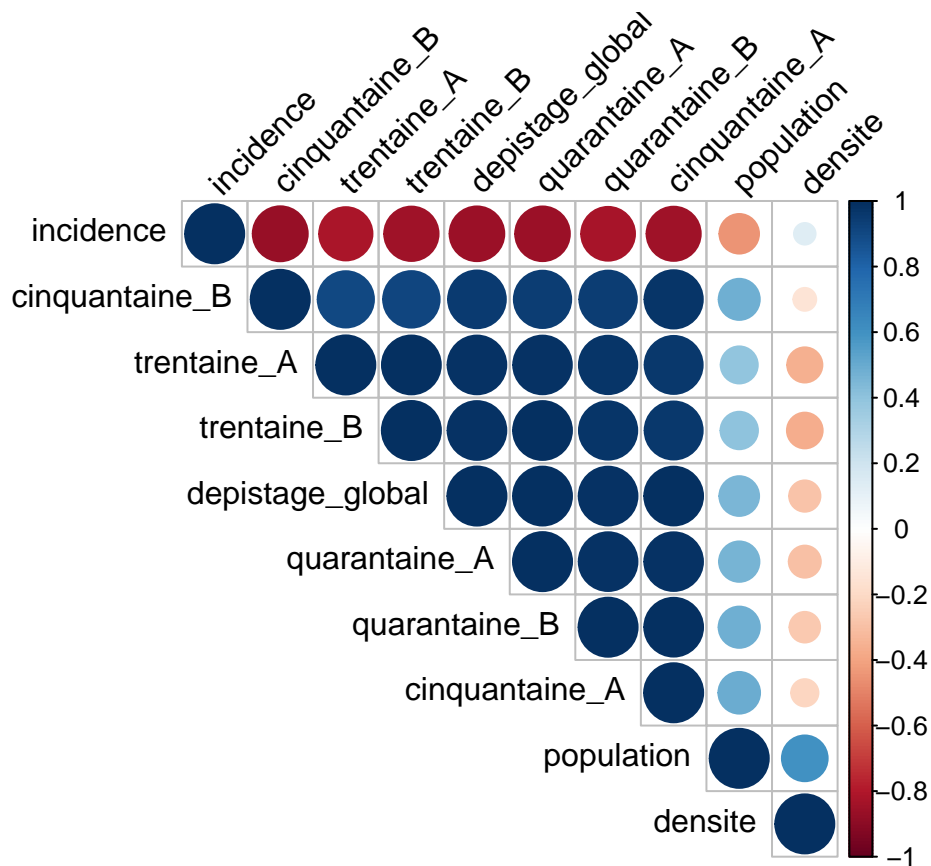
R Markdown

Using regional data on HPV rates, we shall analyze *time series* trends for specific regions (called “sentinelles”). The prevalence is calculated based on regional incidence estimates, incorporating multiple indicators. We employ statistical methods like *ARIMA* to forecast *cervical cancer* cases for the upcoming years. Furthermore, we investigate correlations between cervical cancer *screening rates* and *incidence* at both departmental and regional levels, revealing interesting insights on outlier regions. Our findings contribute to a deeper understanding of cancer epidemiology and could aid in developing targeted regional interventions.

```
indicateurs <- read_csv("indicateurs.csv")

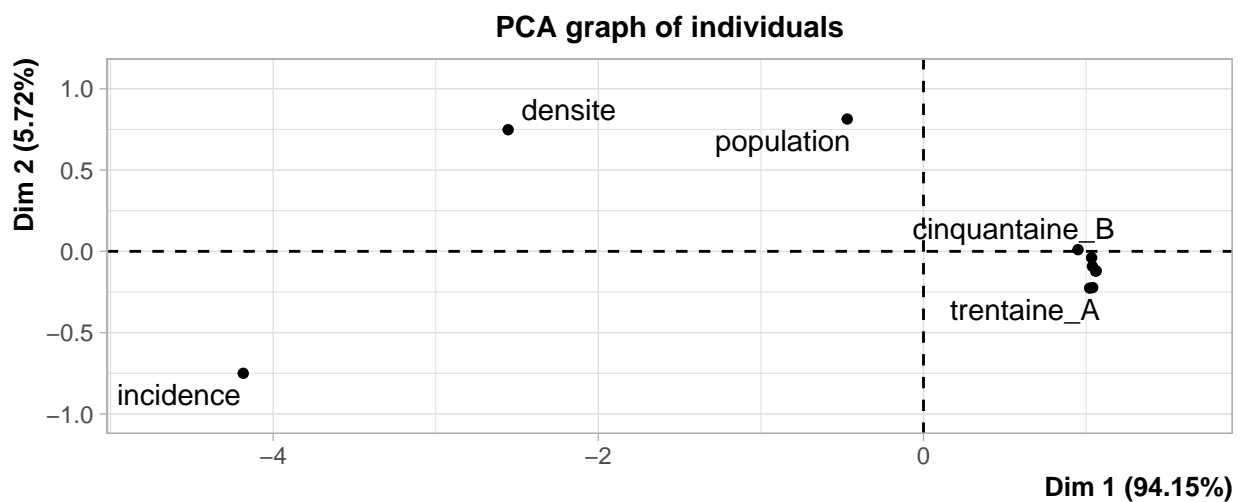
## Rows: 16 Columns: 13
## -- Column specification -----
## Delimiter: ","
## chr  (1): libelle_region
## dbl (12): Index, population, incidence, depistage_global, trentaine_A, trent...
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
indicateurs_num=subset(indicateurs,select=c("population","incidence","depistage_global","trentaine_A","
mat_cor=cor(indicateurs_num)
# print correlogram

corrplot(corr = mat_cor,type = "upper",order = "hclust", tl.col = "black",tl.srt = 45)
```

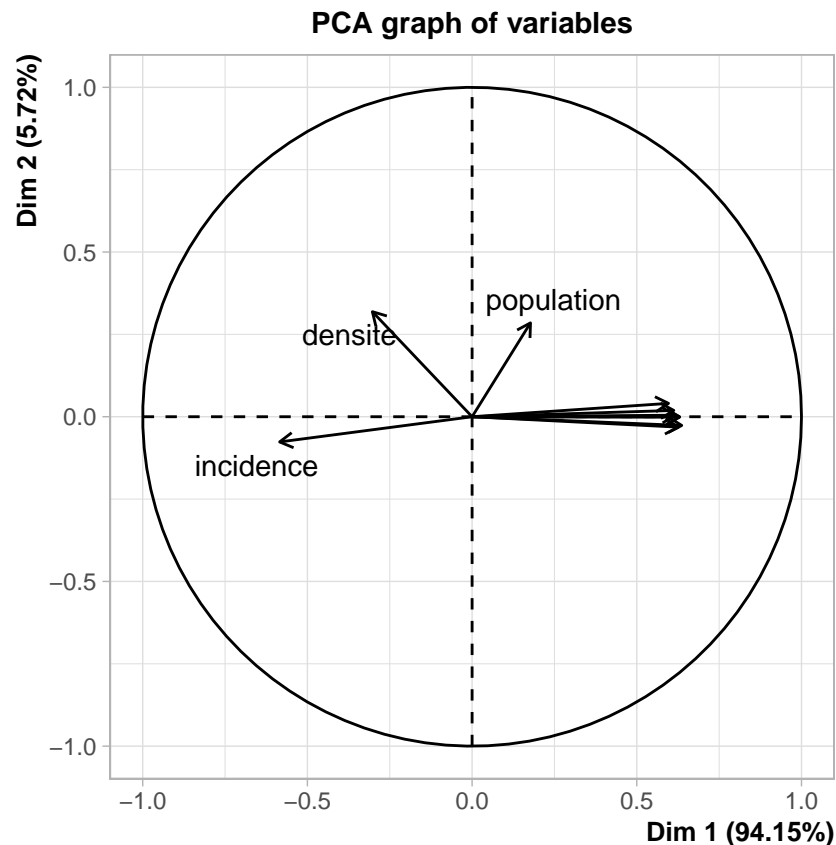


```
res.pca= PCA(mat_cor, scale.unit = FALSE, graph = TRUE)
```

```
## Warning: ggrepel: 5 unlabeled data points (too many overlaps). Consider
## increasing max.overlaps
```



```
## Warning: ggrepel: 7 unlabeled data points (too many overlaps). Consider
## increasing max.overlaps
```



```
# l'incidence en nouveaux cas de CCU est significativement corrélée au faible dépistage chez les jeunes
#cor.test(indicateurs$incidence, indicateurs$trentaine_A)
cor.test(indicateurs$incidence, indicateurs$vingtaine_B)
```

```
##
## Pearson's product-moment correlation
##
## data: indicateurs$incidence and indicateurs$vingtaine_B
## t = -4.3812, df = 14, p-value = 0.0006271
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.9122585 -0.4248782
## sample estimates:
## cor
## -0.7604267
```

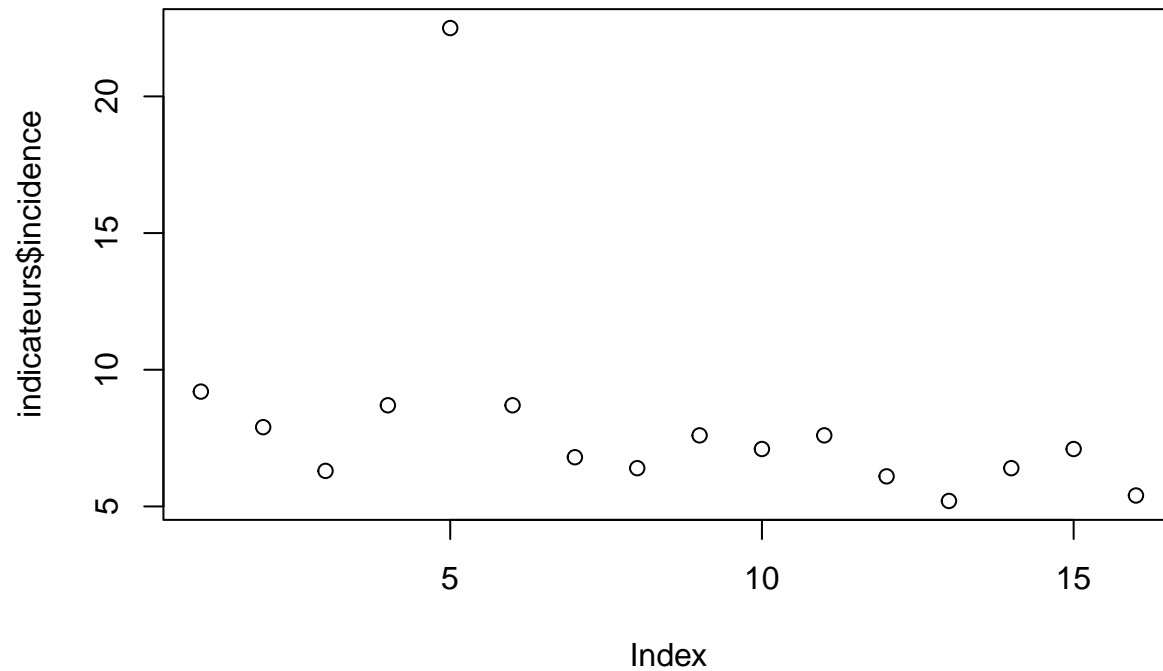
```
# l'absence de dépistage du CCU chez les gens de moins de 35 ans est très fortement corrélée à l'incidence
# le nombre de nouveaux cas n'est pas corrélé de manière significative à la densité de population
cor.test(indicateurs_num$incidence, indicateurs_num$densite)
```

```
##
## Pearson's product-moment correlation
##
## data: indicateurs_num$incidence and indicateurs_num$densite
## t = 0.50302, df = 14, p-value = 0.6228
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
```

```
## -0.3880996 0.5899776
## sample estimates:
##      cor
## 0.1332386
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.