

NHISS Example

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Chapter 1

Baseline characteristic table

Baseline tables show the characteristics of research subjects included in a study. A table characterizing baseline characteristics is so important that it's typically the first table that appears in any observational epidemiology (or clinical trial) manuscript, so it's commonly referred to as a "Table 1". The "Table 1" contain information about the mean and standard deviation(or median and IQR) for continue/scale variable, and proportion for categorical variable.

Baseline characteristic table should be created before imputaion, matching, or weighting.

```
* Using data final_db
* Outcome variable : HTN
* Follow-up period : DATEDIFF
* Exposure variable : DM
* Covariates : Age, Sex, SES, Region, BMI, CCI, Comorbidities(Dyslipidemia, Ischemic heart disease)
```

```
## load library
library(moonBook)
library(dplyr)
```

```
## load data
final_db <- read.csv('Data/final_db.csv', header=T)
```

```
## formula
formula.bc <- formula(DM ~ HTN + DATEDIFF + AGE + SEX + SES + REGION + BMI + CCI + DYS + IHD)
```

-
- Use **mytable()** function in **moonBook** package to create baseline characteristic tables.

- method=1 : forces analysis as normal-distributed
- method=3 : performs a Shapiro-Wilk test to decide between normal or non-normal

1.1 Baseline characteristic table

```
mytable(formula.bc, data=final_db, method=3)
```

```
##
##              Descriptive Statistics by 'DM'
## -----
##              0              1              p
##              (N=2356)      (N=118)
## -----
## HTN
##   - 0      2215 (94.0%)      69 (58.5%)      0.000
##   - 1      141 ( 6.0%)      49 (41.5%)
## DATEDIFF 1685.0 [835.5;2460.5] 963.5 [324.0;1690.0] 0.000
## AGE      36.0 [22.0;48.0]      58.0 [50.0;68.0] 0.000
## SEX
##   - 1      1182 (50.2%)      58 (49.2%)      0.903
##   - 2      1174 (49.8%)      60 (50.8%)
## SES
##   - 1      668 (29.6%)      29 (25.2%)      0.393
##   - 2      709 (31.4%)      34 (29.6%)
##   - 3      883 (39.1%)      52 (45.2%)
## REGION
##   - 1      1160 (49.5%)      58 (49.2%)      0.996
##   - 2      489 (20.9%)      25 (21.2%)
##   - 3      694 (29.6%)      35 (29.7%)
## BMI      23.1 [21.0;25.2]      24.3 [22.6;26.1] 0.013
## CCI
##   - 0      1810 (76.8%)      80 (67.8%)      0.001
##   - 1      433 (18.4%)      23 (19.5%)
##   - 2      113 ( 4.8%)      15 (12.7%)
## DYS
##   - 0      2285 (97.0%)      100 (84.7%)      0.000
##   - 1      71 ( 3.0%)      18 (15.3%)
## IHD
##   - 0      2340 (99.3%)      116 (98.3%)      0.476
##   - 1      16 ( 0.7%)      2 ( 1.7%)
## -----
```

1.2 Baseline characteristic table__total

```
tot1 <- final_db %>% mutate(tmp=1)
tot2 <- final_db %>% mutate(tmp=2)
tot3 <- rbind(tot1,tot2)
```

```
mytable(tmp ~ HTN + DATEDIFF + AGE + SEX + SES + REGION + BMI + CCI + DYS + IHD, data=tot3, method="glm")
```

```
##
##          Descriptive Statistics by 'tmp'
## -----
##              1              2              p
##          (N=2474)      (N=2474)
## -----
## HTN                                     1.000
##   - 0      2284 (92.3%)      2284 (92.3%)
##   - 1       190 ( 7.7%)       190 ( 7.7%)
## DATEDIFF 1656.0 [811.0;2458.0] 1656.0 [811.0;2458.0] 1.000
## AGE      36.0 [22.0;50.0]      36.0 [22.0;50.0] 1.000
## SEX
##   - 1      1240 (50.1%)      1240 (50.1%)
##   - 2      1234 (49.9%)      1234 (49.9%)
## SES
##   - 1       697 (29.3%)      697 (29.3%)
##   - 2       743 (31.3%)      743 (31.3%)
##   - 3       935 (39.4%)      935 (39.4%)
## REGION
##   - 1      1218 (49.5%)      1218 (49.5%)
##   - 2       514 (20.9%)      514 (20.9%)
##   - 3       729 (29.6%)      729 (29.6%)
## BMI      23.2 [21.0;25.3]      23.2 [21.0;25.3] 1.000
## CCI
##   - 0      1890 (76.4%)      1890 (76.4%)
##   - 1       456 (18.4%)      456 (18.4%)
##   - 2       128 ( 5.2%)      128 ( 5.2%)
## DYS
##   - 0      2385 (96.4%)      2385 (96.4%)
##   - 1        89 ( 3.6%)        89 ( 3.6%)
## IHD
##   - 0      2456 (99.3%)      2456 (99.3%)
##   - 1        18 ( 0.7%)        18 ( 0.7%)
## -----
```


Chapter 2

Hello bookdown

All chapters start with a first-level heading followed by your chapter title, like the line above. There should be only one first-level heading (#) per .Rmd file.

2.1 A section

All chapter sections start with a second-level (##) or higher heading followed by your section title, like the sections above and below here. You can have as many as you want within a chapter.

An unnumbered section

Chapters and sections are numbered by default. To un-number a heading, add a {.unnumbered} or the shorter {-} at the end of the heading, like in this section.

Chapter 3

Cross-references

Cross-references make it easier for your readers to find and link to elements in your book.

3.1 Chapters and sub-chapters

There are two steps to cross-reference any heading:

1. Label the heading: `# Hello world {#nice-label}`.
 - Leave the label off if you like the automated heading generated based on your heading title: for example, `# Hello world = # Hello world {#hello-world}`.
 - To label an un-numbered heading, use: `# Hello world {-#nice-label}` or `{# Hello world .unnumbered}`.
2. Next, reference the labeled heading anywhere in the text using `\@ref(nice-label)`; for example, please see Chapter 3.
 - If you prefer text as the link instead of a numbered reference use: any text you want can go here.

3.2 Captioned figures and tables

Figures and tables *with captions* can also be cross-referenced from elsewhere in your book using `\@ref(fig:chunk-label)` and `\@ref(tab:chunk-label)`, respectively.

See Figure 3.1.

```
par(mar = c(4, 4, .1, .1))  
plot(pressure, type = 'b', pch = 19)
```



Figure 3.1: Here is a nice figure!

Don't miss Table 3.1.

```
knitr::kable(  
  head(pressure, 10), caption = 'Here is a nice table!',  
  booktabs = TRUE  
)
```

Table 3.1: Here is a nice table!

temperature	pressure
0	0.0002
20	0.0012
40	0.0060
60	0.0300
80	0.0900
100	0.2700
120	0.7500
140	1.8500
160	4.2000
180	8.8000

Chapter 4

Parts

You can add parts to organize one or more book chapters together. Parts can be inserted at the top of an .Rmd file, before the first-level chapter heading in that same file.

Add a numbered part: `# (PART) Act one {-}` (followed by `# A chapter`)

Add an unnumbered part: `# (PART*) Act one {-}` (followed by `# A chapter`)

Add an appendix as a special kind of un-numbered part: `# (APPENDIX) Other stuff {-}` (followed by `# A chapter`). Chapters in an appendix are prepended with letters instead of numbers.

Chapter 5

Footnotes and citations

5.1 Footnotes

Footnotes are put inside the square brackets after a caret `^[]`. Like this one ¹.

5.2 Citations

Reference items in your bibliography file(s) using `@key`.

For example, we are using the **bookdown** package [Xie, 2023] (check out the last code chunk in `index.Rmd` to see how this citation key was added) in this sample book, which was built on top of R Markdown and **knitr** [Xie, 2015] (this citation was added manually in an external file `book.bib`). Note that the `.bib` files need to be listed in the `index.Rmd` with the YAML `bibliography` key.

The RStudio Visual Markdown Editor can also make it easier to insert citations: <https://rstudio.github.io/visual-markdown-editing/#/citations>

¹This is a footnote.

Chapter 6

Blocks

6.1 Equations

Here is an equation.

$$f(k) = \binom{n}{k} p^k (1-p)^{n-k} \quad (6.1)$$

You may refer to using `\@ref{eq:binom}`, like see Equation (6.1).

6.2 Theorems and proofs

Labeled theorems can be referenced in text using `\@ref{thm:tri}`, for example, check out this smart theorem 6.1.

Theorem 6.1. *For a right triangle, if c denotes the length of the hypotenuse and a and b denote the lengths of the **other** two sides, we have*

$$a^2 + b^2 = c^2$$

Read more here <https://bookdown.org/yihui/bookdown/markdown-extensions-by-bookdown.html>.

6.3 Callout blocks

The R Markdown Cookbook provides more help on how to use custom blocks to design your own callouts: <https://bookdown.org/yihui/rmarkdown-cookbook/custom-blocks.html>

Chapter 7

Sharing your book

7.1 Publishing

HTML books can be published online, see: <https://bookdown.org/yihui/bookdown/publishing.html>

7.2 404 pages

By default, users will be directed to a 404 page if they try to access a webpage that cannot be found. If you'd like to customize your 404 page instead of using the default, you may add either a `_404.Rmd` or `_404.md` file to your project root and use code and/or Markdown syntax.

7.3 Metadata for sharing

Bookdown HTML books will provide HTML metadata for social sharing on platforms like Twitter, Facebook, and LinkedIn, using information you provide in the `index.Rmd` YAML. To setup, set the `url` for your book and the path to your `cover-image` file. Your book's `title` and `description` are also used.

This `gitbook` uses the same social sharing data across all chapters in your book—all links shared will look the same.

Specify your book's source repository on GitHub using the `edit` key under the configuration options in the `_output.yml` file, which allows users to suggest an edit by linking to a chapter's source file.

Read more about the features of this output format here:

<https://pkgs.rstudio.com/bookdown/reference/gitbook.html>

Or use:

```
?bookdown::gitbook
```

Bibliography

Yihui Xie. *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition, 2015. URL <http://yihui.org/knitr/>. ISBN 978-1498716963.

Yihui Xie. *bookdown: Authoring Books and Technical Documents with R Markdown*, 2023. URL <https://CRAN.R-project.org/package=bookdown>. R package version 0.32.