gtsummary (https://github.com/ddsjoberg/gtsummary)

The {gtsummary} package provides an elegant and flexible way to create publication-ready analytical and summary tables using the **R** programming language. The {gtsummary} package summarizes data sets, regression models, and more, using sensible defaults with highly customizable capabilities.

- **Summarize data frames or tibbles** (http://www.danieldsjoberg.com/gtsummary/articles/tbl_summary.html) easily in **R**. Perfect for presenting descriptive statistics, comparing group **demographics** (e.g creating a **Table 1** for medical journals), and more. Automatically detects continuous, categorical, and dichotomous variables in your data set, calculates appropriate descriptive statistics, and also includes amount of missingness in each variable.
- **Summarize regression models** (http://www.danieldsjoberg.com/gtsummary/articles/tbl_regression.html) in R and include reference rows for categorical variables. Common regression models, such as logistic regression and Cox proportional hazards regression, are automatically identified and the tables are pre-filled with appropriate column headers (i.e. Odds Ratio and Hazard Ratio).
- **Customize gtsummary tables** (http://www.danieldsjoberg.com/gtsummary/reference/index.html#section-general-formatting-styling-functions) using a growing list of formatting/styling functions. **Bold (http://www.danieldsjoberg.com/gtsummary/reference/bold_italicize_labels_levels.html)** labels, **italicize (http://www.danieldsjoberg.com/gtsummary/reference/bold_italicize_labels_levels.html)** levels, **add p-value (http://www.danieldsjoberg.com/gtsummary/reference/add_p.html)** to summary tables, **style (http://www.danieldsjoberg.com/gtsummary/reference/style_percent.html)** the statistics however you choose, **merge (http://www.danieldsjoberg.com/gtsummary/reference/tbl_merge.html)** or **stack (http://www.danieldsjoberg.com/gtsummary/reference/tbl_stack.html)** tables to present results side by side… there are so many possibilities to create the table of your dreams!
- **Report statistics inline (http://www.danieldsjoberg.com/gtsummary/articles/tbl_summary.html#inline_text)** from summary tables and regression summary tables in **R markdown**. Make your reports completely reproducible!

By leveraging {broom} (https://broom.tidymodels.org/), {gt} (https://gt.rstudio.com/), and {labelled} (http://larmarange.github.io/labelled/) packages, {gtsummary} creates beautifully formatted, ready-to-share summary and result tables in a single line of R code!

Check out the examples below, review the vignettes (http://www.danieldsjoberg.com/gtsummary/articles/) for a detailed exploration of the output options, and view the gallery (http://www.danieldsjoberg.com/gtsummary/articles/gallery.html) for various customization examples.

Installation

The {gtsummary} package was written as a companion to the {gt} (https://gt.rstudio.com/) package from RStudio. You can install {gtsummary} with the following code.

```
install.packages (https://rdrr.io/r/utils/install.packages.html)("gtsummary")
```

Install the development version of {gtsummary} with:

```
remotes::install_github (https://remotes.r-lib.org/reference/install_github.html)("ddsjoberg/gtsumm
```

Examples

Summary Table

Use `tbl_summary()` (http://www.danieldsjoberg.com/gtsummary/reference/tbl_summary.html) to summarize a data frame.

Links

Download from CRAN at https://cloud.r-project.org/package=gtsummary (https://cloud.r-project.org/package=gtsummary)

Browse source code at https://github.com/ddsjoberg/gtsummary/ (https://github.com/ddsjoberg/gtsumma

Report a bug at https://github.com/ddsjoberg/gtsummary/issues (https://github.com/ddsjoberg/gtsumma

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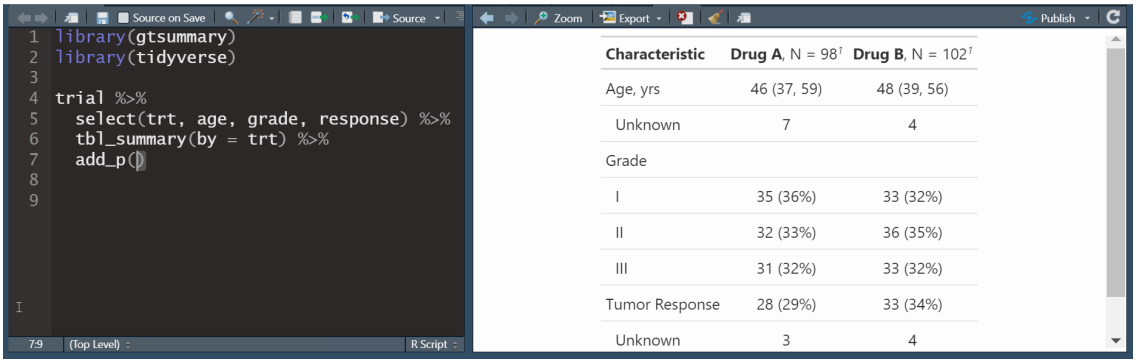
Dev status

codecov 93% (https://codecov.io/gh/ddsjoberg/gtsum branch=master)

R-CMD-check passing (https://github.com/ddsjoberg/gtsumma

CRAN 1.3.5 (https://cran.r-



project.org/package=gtsummary)

downloads 4710/month (https://cran.r-project.org/package=gtsummary)

lifecycle maturing (https://www.tidyverse.org/lifecycle/#m

Example basic table:

```
library (https://rdrr.io/r/base/library.html)(gtsummary (https://github.com/ddsjoberg/gtsummary))
# make dataset with a few variables to summarize
trial2 <- trial %>% select (https://dplyr.tidyverse.org/reference/select.html)(trt, age, grade, res

# summarize the data with our package
table1 <- tbl_summary (reference/tbl_summary.html)(trial2)
```

Characteristic	N = 200[1]
Chemotherapy Treatment	
Drug A	98 (49%)
Drug B	102 (51%)
Age	47 (38, 57)
Unknown	11
Grade	
I	68 (34%)
II	68 (34%)
III	64 (32%)
Tumor Response	61 (32%)
Unknown	7

[1] Statistics presented: n (%); Median (IQR)

There are many **customization options** to **add information** (like comparing groups) and **format results** (like bold labels) in your table. See the `tbl_summary()` (http://www.danieldsjoberg.com/gtsummary/articles/tbl_summary.html) tutorial for many more options, or below for one example.

```
table2 <-
  tbl_summary (reference/tbl_summary.html)(
    trial2,
    by = trt, # split table by group
    missing = "no" # don't list missing data separately
  ) %>%
  add_n (reference/add_n.html)() %>% # add column with total number of non-missing observations
  add_p (reference/add_p.html)() %>% # test for a difference between groups
  modify_header (reference/modify.html)(label = "**Variable**") %>% # update the column header
  bold_labels (reference/bold_italicize_labels_levels.html)()
```

Variable	N	Drug A, N = 98[1]	Drug B, N = 102[1]	p-value[2]
Age	189	46 (37, 59)	48 (39, 56)	0.7
Grade	200			0.9
I		35 (36%)	33 (32%)	
II		32 (33%)	36 (35%)	
III		31 (32%)	33 (32%)	
Tumor Response	193	28 (29%)	33 (34%)	0.6

[1] Statistics presented: Median (IQR); n (%)

[2] Statistical tests performed: Wilcoxon rank-sum test; chi-square test of independence

Regression Models

Use `tbl_regression()` (http://www.danieldsjoberg.com/gtsummary/reference/tbl_regression.html) to easily and beautifully display regression model results in a table. See the tutorial (http://www.danieldsjoberg.com/gtsummary/articles/tbl_regression.html) for customization options.

```
mod1 <- glm (https://rdrr.io/r/stats/glm.html)(response ~ trt + age + grade, trial, family = binomi

t1 <- tbl_regression (reference/tbl_regression.html)(mod1, exponentiate = TRUE)
```

Characteristic	OR[1]	95% CI[1]	p-value
Chemotherapy Treatment			
Drug A	—	—	
Drug B	1.13	0.60, 2.13	0.7
Age	1.02	1.00, 1.04	0.10
Grade			
I	—	—	
II	0.85	0.39, 1.85	0.7
III	1.01	0.47, 2.15	>0.9

[1] OR = Odds Ratio, CI = Confidence Interval

Side-by-side Regression Models

You can also present side-by-side regression model results using `tbl_merge()`

```
library (https://rdrr.io/r/base/library.html)(survival (https://github.com/therneau/survival))
#> Warning: package 'survival' was built under R version 4.0.2

# build survival model table
t2 <-
  coxph (https://rdrr.io/pkg/survival/man/coxph.html)(Surv (https://rdrr.io/pkg/survival/man/Surv.h
  tbl_regression (reference/tbl_regression.html)(exponentiate = TRUE)

# merge tables
tbl_merge_ex1 <-
  tbl_merge (reference/tbl_merge.html)(
    tbls = list (https://rdrr.io/r/base/list.html)(t1, t2),
    tab_spanner = c (https://rdrr.io/r/base/c.html)("**Tumor Response**", "**Time to Death**")
  )
```

Characteristic	Tumor Response			Time to Death		
	OR[1]	95% CI[1]	p-value	HR[1]	95% CI[1]	p-value
Chemotherapy Treatment						
Drug A	—	—		—	—	
Drug B	1.13	0.60, 2.13	0.7	1.30	0.88, 1.92	0.2
Age	1.02	1.00, 1.04	0.10	1.01	0.99, 1.02	0.3
Grade						
I	—	—		—	—	
II	0.85	0.39, 1.85	0.7	1.21	0.73, 1.99	0.5
III	1.01	0.47, 2.15	>0.9	1.79	1.12, 2.86	0.014

[1] OR = Odds Ratio, CI = Confidence Interval, HR = Hazard Ratio

Review even more output options in the **table gallery (http://www.danieldsjoberg.com/gtsummary/articles/gallery.html)**.

gtsummary + R Markdown

The **{gtsummary}** package was written to be a companion to the **{gt}** package from RStudio. But not all output types are supported by the **{gt}** package. Therefore, we have made it possible to print **{gtsummary}** tables with various engines.

Review the **gtsummary + R Markdown (http://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html)** vignette for details.

Print Engine	Function	HTML	PDF	RTF	Word
gt	`as_gt()`	😁	⚠	⚠	⛔
kable	`as_kable()`	😐	😐	😐	😐
flextable	`as_flex_table()`	😁	😁	⛔	😁
kableExtra	`as_kable_extra()`	😁	😁	⛔	⛔
tibble	`as_tibble()`	☹	☹	☹	☹

(http://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html)

Contributing

Please note that the {gtsummary} project is released with a Contributor Code of Conduct (http://www.danieldsjoberg.com/gtsummary/CODE_OF_CONDUCT.html). By contributing to this project, you agree to abide by its terms. A big thank you to all contributors!
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Site built with pkgdown (https://pkgdown.r-lib.org/) 1.6.1