

Data & Variable Transformation with sjmisc Cheat Sheet



sjmisc complements dplyr, and helps with data transformation tasks and recoding *variables*.

sjmisc works together seamlessly with dplyr and pipes. All functions are designed to support labelled data.



Design Philosophy

The design of sjmisc functions follows the tidyverse-approach: first argument is always the data (either a *data frame* or *vector*), followed by variable names to be processed by the functions.

The returned object for each function *equals the type of the data-argument*.

Vector input

- If the data-argument is a *vector*, functions return a *vector*.



```
rec(mtcars$carb, rec = "1,2=1; 3,4=2; else=3")
```

Data frame input

- If the data-argument is a *data frame*, functions return a *data frame*.



```
rec(mtcars, carb, rec = "1,2=1; 3,4=2; else=3")
```

The ...-ellipses Argument

Apply functions to a single variable, selected variables or to a complete data frame.

Variable selection is powered by dplyr's `select()`: Separate variables with comma, or use dplyr's select-helpers to select variables, e.g. `?rec`:

```
rec(mtcars, one_of(c("gear", "carb")),  
     rec = "min:3=1; 4:max=2")  
rec(mtcars, gear, carb, rec = "min:3=1; 4:max=2")
```

Descriptives and Summaries

Most of the sjmisc functions (including recode-functions) also work on grouped data frames:

```
library(dplyr)  
efc %>%  
  group_by(e16sex, c172code) %>%  
  frq(e42dep)
```

Frequency Tables

```
frq(x, ..., sort.frq = c("none", "asc", "desc"),  
    weight.by = NULL, auto.grp = NULL, ...)
```

Print frequency tables of (labelled) vectors. Uses variable labels as table header.

```
data(efc); frq(efc, e42dep, c161sex)
```

Use this data set in examples!

```
flat_table(data, ..., margin = c("counts",  
  "cell", "row", "col"), digits = 2,  
  show.values = FALSE)
```

Print contingency tables of (labelled) vectors. Uses value labels.

```
flat_table(efc, e42dep, c172code, e16sex)
```

```
count_na(x, ...)
```

Print frequency table of tagged NA values.

```
library(haven); x <- labelled(c(1:3,  
  tagged_na("a", "a", "z")), labels =  
  c("Refused" = tagged_na("a"), "N/A" =  
  tagged_na("z")))  
count_na(x)
```

Descriptive Summary

```
descr(x, ..., max.length = NULL)
```

Descriptive summary of data frames, including variable labels in output.

```
descr(efc, contains("cop"), max.length = 20)
```

Finding Variables in a Data Frame

Use `find_var()` to search for variables by names, value or variable labels. Returns vector/data frame.

```
# variables with "cop" in names and variable labels  
find_var(efc, pattern = "cop", out = "df")
```

```
# variables with "level" in names and value labels  
find_var(efc, "level", search = "name_value")
```

Recode and Transform Variables

Recode functions add a *suffix* to new variables, so original variables are preserved.

By default, original input data frame and new created variables are returned. Use `append = FALSE` to return the recoded variables only.

```
rec(x, ..., rec, as.num = TRUE, var.label =  
  NULL, val.labels = NULL, append = TRUE,  
  suffix = "_r")
```

Recode values, return result as numeric, character or categorical (factor).

```
rec(mtcars, carb, rec = "1,2=1; 3,4=2; else=3")
```

```
dicho(x, ..., dich.by = "median", as.num =  
  FALSE, var.label = NULL, val.labels = NULL,  
  append = TRUE, suffix = "_d")
```

Dichotomise variable by median, mean or specific value.

```
dicho(mtcars, disp)
```

```
split_var(x, ..., n, as.num = FALSE,  
  val.labels = NULL, var.label = NULL,  
  inclusive = FALSE, append = TRUE,  
  suffix = "_g")
```

Split variable into equal sized groups. Unlike `dplyr::ntile()`, does not split original categories into different values (see examples in `?split_var`).

```
split_var(mtcars, mpg, disp, n = 3)
```

```
group_var(x, ..., size = 5, as.num = TRUE,  
  right.interval = FALSE, n = 30, append =  
  TRUE, suffix = "_gr")
```

Split variable into groups with equal value range, or into a max. # of groups (value range per group is adjusted to match # of groups).

```
group_var(mtcars, mpg, disp, size = 5)  
group_var(mtcars, mpg, size = "auto", n = 4)
```

```
std(x, ..., robust = "sd", include.fac = FALSE,  
  append = TRUE, suffix = "_z")
```

Z-standardise variables. Also `center()`.

```
std(efc, e17age, c160age)
```

```
recode_to(x, ..., lowest = 0, highest = -1,  
  append = TRUE, suffix = "_r0")
```

Shift ("renumber") categories or values.

```
recode_to(mtcars$gear)
```

Summarise Variables and Cases

The summary functions mostly mimic base R equivalents, but are designed to work together with pipes and dplyr.



```
row_sums(x, ..., na.rm = TRUE, var =  
  "rowsums", append = FALSE)
```

Row sums of data frames.

```
row_sums(efc, c82cop1:c90cop9)
```

```
row_means(x, ..., n, var = "rowmeans",  
  append = FALSE)
```

Row means, for at least *n* valid (non-NA) values.

```
row_means(efc, c82cop1:c90cop9, n = 7)
```

```
row_count(x, ..., count, var = "rowcount",  
  append = FALSE)
```

Row-wise count # of values in data frames.

Also `col_count()`.

```
row_count(efc, c82cop1:c90cop9, count = 2)
```

Other Useful Functions

- `add_columns()` and `replace_columns()` to combine data frames, but either replace or preserve existing columns.
- `set_na()` and `replace_na()` to convert regular into missing values, or vice versa. `replace_na()` also replaces specific tagged NA values only.
- `remove_var()` and `var_rename()` to remove variables from data frames, or rename variables.
- `group_str()` to group similar string values. Useful for variables with similar, but not identically spelled string values that should be "merged".
- `merge_df()` to full join data frames and preserve value and variable labels.
- `to_long()` to gather multiple columns in data frames from wide into long format.

Use with %>% and dplyr

```
# use sjmisc-functions in pipes  
mtcars %>% select(gear, carb) %>%  
  rec(rec = "min:3=1; 4:max=2")
```

```
# use sjmisc-function inside mutate  
mtcars %>% select(gear, carb) %>% mutate(  
  carb2 = rec(carb, rec = "1,2=0;3:8=1"),  
  gear2 = rec(gear, rec = "3=1;4:max=2"))
```