

Package ‘scaledescr’

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Type Package

Title Descriptive, Reliability, and Inferential Tables for
Psychometric Scales and Demographic Data

Version 0.2.3

Description

Provides functions to format and summarise already computed outputs from commonly used statistical and psychometric functions into compact, single-row tables and simple graphs, with utilities to export results to CSV, Word, and Excel formats. The package does not implement new statistical methods or estimation procedures; instead, it organises and presents results obtained from existing functions such as `psych::describe()`, `psych::alpha()`, `stats::t.test()`, and `gtsummary::tbl_summary()` to streamline reporting workflows in clinical and psychological research.

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compute_ICC	<i>Compute Intraclass Correlation Coefficient (ICC) for Selected Columns</i>
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Description

Computes Intraclass Correlation Coefficients (ICC) for a specified set of numeric variables within a data frame using `psych::ICC()`.

This function standardizes column selection and basic validation while delegating all statistical estimation to `psych::ICC()`.

Usage

```
compute_ICC(data, items, check_numeric = TRUE, lmer = FALSE, ...)
```

Arguments

<code>data</code>	A data frame containing the ratings or measurements.
<code>items</code>	A character vector specifying column names for which ICC should be calculated (e.g., raters or repeated measurements).
<code>check_numeric</code>	Logical. If TRUE (default), ensures all selected columns are numeric.
<code>lmer</code>	Logical. Passed to <code>psych::ICC()</code> . Default is FALSE.
<code>...</code>	Additional arguments passed to <code>psych::ICC()</code> .

Details

The function does not choose or filter specific ICC models. All available ICC types (e.g., ICC1, ICC2, ICC3, single and average) are returned exactly as produced by `psych::ICC()`.

Users are responsible for:

- Choosing the appropriate ICC model for their study design.
- Ensuring assumptions (e.g., continuous ratings, independence).
- Handling missing data appropriately.

Value

An object returned by `psych::ICC()`, typically a list containing a results table with ICC estimates, F statistics, confidence intervals, and model details.

See Also

[ICC](#)

make_alphanumeric_conversion

Convert Between Alphabetical and Numeric Responses

Description

Converts specified columns between alphabetical (text) and numeric values. Can either overwrite existing columns or create new ones.

Usage

```
make_alphanumeric_conversion(  
  data,  
  column_vars,  
  from_values,  
  to_values,  
  new_names = NULL,  
  case_sensitive = FALSE  
)
```

Arguments

<code>data</code>	A data frame.
<code>column_vars</code>	Character vector of column names to convert.
<code>from_values</code>	Vector of values to replace (character or numeric).
<code>to_values</code>	Vector of replacement values (must be same length as <code>from_values</code>).
<code>new_names</code>	Optional character vector of new column names. If <code>NULL</code> (default), original columns are overwritten.
<code>case_sensitive</code>	Logical. Only relevant when converting character values. Default is <code>FALSE</code> .

Details

Factors are automatically converted to character before matching. Unmatched values become NA with a warning.

Value

A data frame with converted values.

make_alpha_table *Wrap a pre computed psych::alpha object into a single row table*

Description

Wrap a pre computed psych::alpha object into a single row table

Usage

```
make_alpha_table(alpha_res, scale_name = "Scale")
```

Arguments

alpha_res A psych::alpha object (already computed)
scale_name Name of the scale (default: "Scale")

Value

A data frame with columns: Scale, 95

Examples

```
# Create a minimal "psych::alpha" like object manually
alpha_obj <- list(
  total = list(
    raw_alpha = 0.85,
    lower = 0.78,
    upper = 0.92
  )
)

# Generate the formatted alpha table
make_alpha_table(alpha_obj, scale_name = "PHQ-9")
```

make_chisq_test_table *Create a one-row summary table for a chi-square test*

Description

This function formats the result of a pre-computed `chisq.test()` into a single-row data frame. It supports goodness-of-fit, independence, and homogeneity chi-square tests and includes an appropriate effect size with a qualitative interpretation.

Usage

```
make_chisq_test_table(  
  chisq_object,  
  test_type = c("independence", "goodness-of-fit", "homogeneity"),  
  digits = 3  
)
```

Arguments

chisq_object	An object or list of objects of class "htest" produced by <code>stats::chisq.test()</code> .
test_type	Character string specifying the type of chi-square test. One of "goodness-of-fit", "independence", or "homogeneity". For multiple object, if separate test_type are not provided than given test type will be used for all chi square test./
digits	Integer indicating the number of decimal places to round to.

Details

The function does not perform the chi-square test itself and does not introduce new statistical methods. All test statistics are extracted directly from the supplied `chisq.test()` object.

For goodness-of-fit tests, Cohen's w is reported. For tests of independence and homogeneity, Cramér's V is reported. Effect size interpretations follow conventional benchmarks (0.10 = small, 0.30 = medium, 0.50 = large).

Value

A single-row data frame with the following columns:

- test: Type of chi-square test
- chi_square: Chi-square statistic
- df: Degrees of freedom
- p_value: p-value
- N: Total sample size
- effect_size: Effect size (Cohen's w or Cramér's V)
- effect_type: Type of effect size reported
- effect_interpretation: Qualitative interpretation of effect size

Examples

```
# Goodness-of-fit example  
observed <- c(40, 30, 50)  
chisq_gof <- chisq.test(observed)  
  
make_chisq_test_table(  
  chisq_object = chisq_gof,  
  test_type = "goodness-of-fit"  
)
```

```
# Independence test example
tbl <- matrix(c(20, 30, 10, 40), nrow = 2)
chisq_ind <- chisq.test(tbl)

make_chisq_test_table(
  chisq_object = chisq_ind,
  test_type = "independence"
)
```

```
make_dataframe_to_output
```

Export a data frame to CSV, Word (.docx), or Excel (.xlsx) format.

Description

If no output path is specified, the file is written to a temporary directory using ‘tempdir()’. For reproducible workflows, users are encouraged to explicitly specify an output location, either the current working directory or a full file path.

Usage

```
make_dataframe_to_output(data, filename = NULL, format = "csv", path = NULL)
```

Arguments

data	A data frame to export.
filename	Optional base file name (without extension). Defaults to object name. (without path and without extension). If not provided, the name of the input object is used.
format	Character string specifying the output format. One of "csv", "word", or "excel". Default is "csv".
path	Optional character string specifying the directory where the file should be saved. If 'NULL' (default), the file is written to a temporary directory. Use 'path = getwd()' to save the file in the current working directory, or provide a full directory path.

Details

- CSV files are written using ‘utils::write.csv()’ - Word files (.docx) are created using the ‘officer’ package - Excel (.xlsx) files are created using the ‘openxlsx’ package

Value

Invisibly returns the full file path to the generated output file.

Examples

```
## Not run:

# Example dataset available in base R
data_df <- head(mtcars)

#-----
# 1. Simplest use: export to CSV in temp directory
#-----
make_dataframe_to_output(data_df)

#-----
# 2. Specify filename
#-----
make_dataframe_to_output(
  data = data_df,
  filename = "mtcars_sample"
)

#-----
# 3. Export as Word document
#-----
make_dataframe_to_output(
  data = data_df,
  filename = "mtcars_word_table",
  format = "word"
)

#-----
# 4. Export as Excel file
#-----
make_dataframe_to_output(
  data = data_df,
  filename = "mtcars_excel_table",
  format = "excel"
)

#-----
# 5. Save to current working directory
#-----
make_dataframe_to_output(
  data = data_df,
  filename = "mtcars_current_folder",
  format = "csv",
  path = "getwd()"
)

#-----
# 6. Save Excel file to current working directory
#-----
make_dataframe_to_output(
  data = data_df,
```

```

    filename = "mtcars_excel_current",
    format = "excel",
    path = "getwd()"
  )

#-----
# 7. Export another base dataset (iris)
#-----
make_dataframe_to_output(
  data = head(iris),
  filename = "iris_sample",
  format = "word"
)

#-----
# 8. Using a custom folder path
#-----
make_dataframe_to_output(
  data = head(airquality),
  filename = "airquality_data",
  format = "excel",
  path = "D:/output_folder"
)

## End(Not run)

```

```
make_demographic_table
```

Create a demographics summary table

Description

Create a demographics summary table

Usage

```
make_demographic_table(data, vars, continuous_vars = NULL)
```

Arguments

data	A data frame
vars	demographic variables to include in the table
continuous_vars	Optional subset of vars to be treated as continuous

Value

A gtsummary table

Examples

```
df <- data.frame(
  age = c("25", "30 years", "35", " 40 ", "22.5", "28+", NA, ""),
  sex = c("M", "F", "m", "f", " M ", "F", "m", NA),
  education = c("HS", "BA", "MA", "ma", "Hs", "Ma", "Ba Bed", "Msc bed ")
)

# Generate a demographic summary table (assign to object to avoid printing)
demo_table <- make_demographic_table(df, vars = c("age", "sex", "education"))
demo_table # optionally inspect the table
```

```
make_demographic_table_to_output
```

Create and Export Demographic Summary Table

Description

Generates a demographic summary table using ‘make_demographic_table()’ and exports the resulting table to Word, Excel, or CSV format.

This is a convenience wrapper that combines analysis and output in a single step for users who want immediate file export.

Usage

```
make_demographic_table_to_output(
  data,
  vars,
  continuous_vars = NULL,
  file_name = "demographic_table",
  format = c("word", "excel", "csv"),
  path = NULL
)
```

Arguments

<code>data</code>	A data frame containing the dataset.
<code>vars</code>	Character vector of variable names to include in the demographic summary.
<code>continuous_vars</code>	Optional character vector specifying which variables should be treated as continuous. If ‘NULL’, numeric variables are automatically detected.
<code>file_name</code>	Name of the output file WITHOUT extension (e.g., "demographics").
<code>format</code>	Output format. Must be one of: <ul style="list-style-type: none"> • "word" - exports to a Word document (.docx) • "excel" - exports to an Excel file (.xlsx)

- `"csv"` - exports to a CSV file (.csv)
- path Optional character string specifying the directory where the file should be saved. If `'NULL'` (default), the file is written to a temporary directory. Provide a full directory path or use `getwd()` during the function call.

Details

The demographic table includes:

- Categorical variables reported as n (
- Continuous variables reported as Mean (SD)

Word export uses `'flextable'` and `'officer'` for formatting. Excel export uses `'openxlsx'`. CSV export uses base R `'write.csv()'`.

Value

Invisibly returns the full file path to the generated output file.

make_independent_t_test_table

Create a one-row summary table for an independent-samples t-test

Description

This function performs an independent-samples t-test (Welch's t-test by default) between two groups defined by a binary grouping variable and returns a single-row data frame. The output includes group names, sample sizes, mean difference, test statistics, p-value, and effect size (Cohen's d) with a qualitative interpretation.

Usage

```
make_independent_t_test_table(data, outcome, group)
```

Arguments

- data A data frame containing the outcome and grouping variables.
- outcome Character string specifying the numeric outcome variable.
- group Character string specifying the grouping variable. Must have exactly two levels.

Details

The function is intended for streamlined reporting and does not introduce new statistical methods. All computations rely on `stats::t.test()`.

Welch's t-test is used by default, which does not assume equal variances. Cohen's d is computed using the pooled standard deviation for comparability with conventional benchmarks. Group ordering follows the factor level order of the grouping variable.

Value

A single-row data frame with the following columns:

- test: Name of the statistical test
- group1, group2: Group labels
- mean_diff: Mean difference between groups (group1 - group2)
- t_value: t statistic
- df: Degrees of freedom
- p_value: p-value
- n_group1, n_group2: Sample sizes per group
- cohens_d: Cohen's d effect size
- interpretation: Qualitative interpretation of effect size

Examples

```
set.seed(123)

data_t <- data.frame(
  group = rep(c("CBT", "Psychodynamic"), each = 30),
  score = c(
    rnorm(30, mean = 18, sd = 4),
    rnorm(30, mean = 21, sd = 4)
  )
)

make_independent_t_test_table(
  data = data_t,
  outcome = "score",
  group = "group"
)
```

```
make_one_sample_t_test_table
```

Create a Summary Table for a One-Sample t-test

Description

Create a Summary Table for a One-Sample t-test

Usage

```
make_one_sample_t_test_table(t_res, variable_label = "Variable", digits = 3)
```

Arguments

`t_res` An object of class "htest" produced by `t.test()`, or a list of such objects.
`variable_label` A character string to label the tested variable(s).
`digits` Integer indicating the number of decimal places to round to.

Value

A data frame summarizing the one-sample t-test results.

Examples

```
data("attitude")
A <- as.data.frame(attitude)

# Example 1: One-sample t-test with default mu = 0
t1 <- t.test(A$rating)
make_one_sample_t_test_table(
  t_res = t1,
  variable_label = "Rating"
)

# Example 2: One-sample t-test with specified mu
t2 <- t.test(A$rating, mu = 60)
make_one_sample_t_test_table(
  t_res = t2,
  variable_label = "Rating"
)

# Example 3: Multiple one-sample t-tests combined into one table
t1 <- t.test(A$rating)
t2 <- t.test(A$learning)
t3 <- t.test(A$raises)

make_one_sample_t_test_table(
  t_res = list(t1, t2, t3),
  variable_label = c("Rating", "Learning", "Raises")
)

# Example 4: Multiple tests with different mu values
t1 <- t.test(A$rating, mu = 60)
t2 <- t.test(A$learning, mu = 65)
t3 <- t.test(A$raises, mu = 50)

make_one_sample_t_test_table(
  t_res = list(t1, t2, t3),
  variable_label = c("Rating", "Learning", "Raises (mu = 50)")
)
```

`make_paired_t_test_table`*Create a one-row summary table of a paired t-test*

Description

This function performs a paired t-test between two numeric variables in a data frame and returns a one-row summary table including means, mean difference, t-value, degrees of freedom, p-value, and confidence interval.

Usage

```
make_paired_t_test_table(  
  data,  
  var1,  
  var2,  
  var_name = NULL,  
  alternative = "two.sided",  
  conf.level = 0.95  
)
```

Arguments

<code>data</code>	A data frame containing the two numeric variables.
<code>var1</code>	Character string. Name of the first variable (observation 1) in 'data'.
<code>var2</code>	Character string. Name of the second variable (observation 2) in 'data'.
<code>var_name</code>	Optional character string. Custom name for the variable to display in the table. Default is 'var1 vs var2'.
<code>alternative</code>	Character string specifying the alternative hypothesis. One of "two.sided", "less", or "greater". Default is "two.sided".
<code>conf.level</code>	Confidence level for the interval. Default is 0.95.

Value

A one-row data frame with columns:

- 'Variable' - variable name
- 'Mean_obs1' - mean of observation 1
- 'Mean_obs2' - mean of observation 2
- 'Mean_diff' - mean difference (obs1 - obs2)
- 't_value' - t statistic
- 'df' - degrees of freedom
- 'p_value' - p-value
- 'CI_lower' - lower bound of confidence interval
- 'CI_upper' - upper bound of confidence interval

Examples

```
# example data
df <- data.frame(
  before = c(10, 12, 14, 15, 11),
  after  = c(11, 13, 13, 16, 12)
)

# Run the paired t-test summary
make_paired_t_test_table(df, var1 = "before", var2 = "after")
```

make_reverse_score *Create Reverse Scores as New Columns*

Description

Create Reverse Scores as New Columns

Usage

```
make_reverse_score(data, vars, min_val, max_val, suffix = "_rev")
```

Arguments

data	A data frame.
vars	A character vector of column names to reverse.
min_val	The minimum possible score of the scale.
max_val	The maximum possible score of the scale.
suffix	A character string to append to the new column names. Defaults to "_rev".

Value

A data frame containing the original data plus the new reversed columns.

make_scale_description_table
Create Descriptive Table for Multiple Scale Columns

Description

Computes descriptive statistics for one or more scale total columns. Accepts either a numeric vector (single column) or a data frame with column names.

Usage

```
make_scale_description_table(
  x = NULL,
  data = NULL,
  columns = NULL,
  scale_names = NULL,
  type = NULL
)
```

Arguments

x	Optional numeric vector of total scores (single column, old-style).
data	Optional data frame containing one or more scale columns.
columns	Optional character vector of column names in 'data' (new-style).
scale_names	Optional character vector of names for each scale. Defaults to column names.
type	"summary" for base::summary(), NULL (default) uses psych::describe().

Value

A data frame with one row per column, containing descriptive statistics.

make_scale_total	<i>Compute Scale Total Score</i>
------------------	----------------------------------

Description

Computes the total score for a psychometric scale by summing specified numeric variables. The resulting total score is appended as a new column to the input data frame. Missing values are handled using 'na.rm = TRUE'.

Usage

```
make_scale_total(data, vars, new_var)
```

Arguments

data	A data frame.
vars	A character vector of column names to be summed.
new_var	A single character string specifying the name of the new total score column.

Value

The input data frame with one additional numeric column.

`scaledescr`*scaledescr*

Description

Provides helper functions to format and summarise already computed outputs from commonly used statistical and psychometric functions into compact, single-row tables and simple graphs. Functions such as `make_scale_description_table()`, `make_demographic_table()`, `make_alpha_table()`, `make_paired_t_test_table()`, and `make_dataframe_to_output()` organise results obtained from existing functions including `psych::describe()`, `psych::alpha()`, `stats::t.test()`, and `gtsummary::tbl_summary()` for streamlined reporting and export to CSV, Word, and Excel formats. The package does not implement new statistical methods or perform additional estimation.

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