

# Package ‘psymetlab’

September 2, 2019

**Title** Provides useful functions for APA formatting and writing output to Excel

**Version** 1.0.1

## Description

Package includes a variety of functions to tag significant correlations, write data to excel, etc.

**Depends** R (>= 3.1.3)

**License** General Public License >= 3.0

**LazyData** true

**RoxygenNote** 6.1.1

**Imports** psych, xlsx

## R topics documented:

f.adverse_impact	1
f.corstar	2
f.describe	3
f.get.reg.output	4
f.screen.outliers	4
f.t_test	5
f.write.corrs	6
<b>Index</b>	<b>7</b>

---

f.adverse_impact	<i>Compute adverse impact statistics</i>
------------------	--

---

## Description

Accepts grouping vector d.group, vector of outcome (e.g., pass/fail) as d.pass, and value for majority group (e.g., "male"), assumes only two groups

## Usage

```
f.adverse_impact(d.group, d.pass, majority.group,  
  min_percent_minority = 0.05)
```

**Arguments**

d.group is a vector of grouping variable values  
 d.pass is a vector of outcome values  
 majority.group is the label of value assigned to the majority group  
 min\_percent\_minority is the minimum percent of the sample that must be in the minority group in order to report results

**Value**

Returns a dataframe with columns...

total.n = overall sample size  
 majority.n = sample size of the majority group  
 minority.n = sample size of the minority group  
 percent.minority = percentage of sample in minority group  
 SR.total = selection ratio of the entire sample  
 SR.majority = selection ratio of the majority group  
 SR.minority = selection ratio of the minority group  
 impact.ratio = SR.minority / SR.majority  
 fishers.p = p value of the Fisher Exact Test  
 SD2.test = results of the 2 Standard Deviation Test  
 lower\_95CI, upper\_95CI = lower and upper confidence intervals around SD2.test  
 shortfall = the number of additional minority group members needed to pass to have a selection ratio = 1

**Author(s)**

Adam Meade <awmeade@ncsu.edu>

**Examples**

```
require('psych')
pass <- ifelse(sat.act$ACT > mean(sat.act$ACT) , 1, 0)
table(sat.act$gender)
f.adverse_impact(sat.act$gender, pass, majority.group = 2)
```

---

f.corstar

---

*Add asterisk(s) to significant correlations*


---

**Description**

Uses an output object from the Psych package and adds 1 or 2 asterisks (stars) to the correlation for APA table output. Returns object as dataframe.

**Usage**

```
f.corstar(corr.obj, is.triangle = TRUE, p.val.1 = 0.05,
  p.val.2 = 0.01)
```

**Arguments**

corr.obj	is the output list object from the corr.test function in the Psych package
is.triangle	is whether the correlation is a symmetric matrix (default) or a rectangular matrix in which one set of variables is correlated with a different set.
p.val.1	is the p-value desired to trigger a single astrisk (default = .05)
p.val.2	is the p-value desired to trigger a second astrisk added to the first default = .01. p.val.2 should be a smaller p val than p.val.1. set p.val.2 = FALSE if no second astrisk is desired

**Author(s)**

Adam Meade <awmeade@ncsu.edu>

**Examples**

```
## Not run:
require('psych')
corrs.1 = corr.test(sat.act)
f.corstar(corrs.1)
f.corstar(corrs.1, p.val.1 = .01, p.val.2 = FALSE)
corrs.2 = corr.test(sat.act[3:5],sat.act[6])
f.corstar(corrs.2,is.triangle = FALSE)

## End(Not run)
```

---

f.describe

---

*Simplify output of R Psych package describe function*


---

**Description**

Accepts dataframe as argument and returns dataframe table

**Usage**

```
f.describe(f.d)
```

**Arguments**

f.d	is the dataframe object
-----	-------------------------

**Author(s)**

Adam Meade <awmeade@ncsu.edu>

**Examples**

```
## Not run:
require('psych')
f.describe(sat.act)

## End(Not run)
```

---

f.get.reg.output	<i>Take output from lm function and put relevant info into a dataframe</i>
------------------	--

---

### Description

Returns a dataframe with predictors and coefficients listed along with model statistics F,df,p, and r-squared values.

### Usage

```
f.get.reg.output(out.lm)
```

### Arguments

out.lm	results of a linear regression from lm()
--------	--

### Author(s)

Adam Meade <awmeade@ncsu.edu>

### Examples

```
## Not run:
model.out <- lm(sat.act[,1]~sat.act[,2]+sat.act[,3])
f.get.reg.output(model.out)

## End(Not run)
```

---

f.screen.outliers	<i>Deletes multivariate outliers using Mahalanobis distance</i>
-------------------	---

---

### Description

Accepts a dataframe and optional list of variables within that dataframe for which to screen the data. The function computes mahalanobis distance and associated chi-square on the screening data and then returns a dataframe that is a subset of the original all.data dataframe based on non-significant chi-square values.

### Usage

```
f.screen.outliers(all.data, screening.vars = NULL, p.val = 0.05)
```

### Arguments

all.data	is the database from which to remove outliers
screening.vars	is an optional array of variable names on which the screening should be based.
p.val	is the cutoff value of the chi-square distribution to use. default is .05.

### Author(s)

Adam Meade <awmeade@ncsu.edu>

## Examples

```
## Not run:
nrow(trees)
new.data <- f.screen.outliers(trees)
nrow(new.data)

## End(Not run)
```

---

f.t\_test

*Returns the results of a t-test along with a Cohen's D effect size estimate*

---

## Description

Requires two dataframes with continuous variables, variance on variables, and matched in variable order. Requires use of describe from 'psych' package. Requires use of cohen.d from 'effsize' package

## Usage

```
f.t_test(df1, df2)
```

## Arguments

df1	is the majority group dataframe
df2	is the minority group dataframe

## Author(s)

Adam Meade <awmeade@ncsu.edu>

## Examples

```
## Not run:
require('psych')
require('effsize')
automatic <- mtcars[which(mtcars$am == 0),]
manual <- mtcars[which(mtcars$am == 1),]
f.t_test(automatic, manual)

## End(Not run)
```

---

f.write.corrs	<i>Formats in APA format and writes correlation matrices to an excel sheet</i>
---------------	--

---

### Description

Uses an output object from the Psych package and adds 1 or 2 asterisks (stars) to the correlation for APA table output. Returns object as dataframe. Writes correlational data for r, n, and pvalues to three consecutively named Excel sheets.

### Usage

```
f.write.corrs(f.name = "output.xlsx", s.name, obj.corrs,
  print.p = TRUE, print.n = TRUE, ...)
```

### Arguments

f.name	is the file name to which to write the data. default = 'output.xlsx'
s.name	is the name of the Excel sheet(s) to which to write the data
obj.corrs	is the correlation object from the corr.test function in the Psych package
print.p	requests printing of p values. default = TRUE
print.n	requests printing of sample size (n). default = TRUE
...	parameters passed to the f.corstar function

### Author(s)

Adam Meade <awmeade@ncsu.edu>

### Examples

```
## Not run:
corrs = corr.test(sat.act)
f.write.corrs(s.name='example',obj.corrs=corrs)
f.write.corrs(f.name='example.xlsx',s.name='example',obj.corrs=corrs,p.val.2=FALSE)

## End(Not run)
```

# Index

f.adverse\_impact, 1  
f.corstar, 2  
f.describe, 3  
f.get.reg.output, 4  
f.screen.outliers, 4  
f.t\_test, 5  
f.write.corrs, 6