swdpwr: A SAS Macro and An R Package for Power Calculation in Stepped Wedge Cluster Randomized Trials

Installing and Compiling swdpwr

Jiachen Chen
Center for Methods in Implementation and Prevention Science (CMIPS)
Yale School of Public Health

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1 SAS macro

The SAS macro **swdpwr** includes a SAS file and an executable file, which provides different versions for Windows and Unix. If you have downloaded the files corresponding to the platform of your computer, no installation is necessary. You will need to put the two files under the same directory and edit line "%let mydir=" in the SAS file to be the correct directory to the parent folder of the downloaded files. It's recommended to work on your own computer since the executive file may need extra approval to be used on clusters.

2 R package

The R package has versions of Package source, Windows binaries and macOS binaries. If you have downloaded the binary package of your platform, no compilation is necessary. The package can be installed by "install.packages("", repos=NULL, type="binary")" (specify the path to the downloaded tgz/zip file as the first parameter) and loaded by "library(swdpwr)" directly.

If you download the package source, you will need to compile **swdpwr** by yourself, and you will need a standard Fortran compiler such as GNU gcc or gfortran. The requirements

for compilation on Windows and macOS are different. For Mac users, before installing gfortran, you will need to have the Xcode installed, as well as "command line developer tools". These can be downloaded from `https://developer.apple.com/download/more/` (free registration required). The gfortran maintainers offer nice Apple-style installers at `https://github.com/fxcoudert/gfortran-for-macOS/releases`, where users can download the DMG file and install according to the instructions easily. For Windows users, gcc can be accessed and downloaded at `https://sourceforge.net/projects/mingw/files/MinGW/Base/gcc/Version6/`. In addition, RTools is needed to build R packages with C/C++/Fortran code from source and can be downloaded at `https://cran.r-project.org/bin/windows/Rtools/`. For more details on installing gfortran, please refer to `https://gcc.gnu.org/wiki/GFortranBinaries`.

After the installation of gfortran, the R package can be installed by "install.packages("", repos=NULL, type="source)" (specify the path to the downloaded tar.gz file as the first parameter) and loaded by "library(swdpwr)".

3 Shiny App

The Shiny App can be accessed through the internet with a web browser, which does not need installation on your own computer.