This document contains an overview of the supplemental data and R syntax files included corresponding with the manuscript *Beyond Path Diagrams: Enhancing Applied Structural Equation Modeling Research through Data Visualization* by Kevin A. Hallgren, Connor J. McCabe, Kevin M. King, and David C. Atkins.

**The following *R* *syntax* files are included in the supplement:**

1. *Barplot.R*, which generates Figure 1 in the manuscript
2. *SEM scatterplots.R*, which generates Figure 2
3. *SEM moderation.R*, which generates Figures 3 and 4
4. *SEM mediation.R*, which generates Figures 5 and 6

**The following *data* file is included in the supplement:**

1. *Data viz in addiction journals.csv*, which contains the data set for Figure 1

The following Word document is included in the supplement:

1. *Alternative nonlinear model specifications.docx*, which contains alternative model specifications for the data shown in Figure 2 panels B and C.

**Brief orientation to R syntax files:**

All the necessary data and R syntax for creating the visualizations in the manuscript are included in these supplemental files. (Note: the one exception to this is the mediation diagram in Figure 6, which was created in Word.)

The file *SEM scatterplots.R* contains the most heavily-commented syntax and may be the easiest file to start with. In addition, most of the procedures used for generating moderation and mediation visualizations are also used in the *SEM scatterplots.R* file. We thus encourage anyone who wishes to replicate or modify these visualizations to examine that file before, or in tandem with, the other syntax files.

We recommend using a [RStudio](https://www.rstudio.com/) to open R syntax files.

Users will need to change the directory paths for reading data and saving image files.

Example Windows format: d = read.csv("C:\\Users\\John Doe\\My folder\\Data viz in addiction journals.csv")

Example Mac format: d = read.csv("/Users/John Doe/My Folder/Data viz in addiction journals.csv")

All figures are currently set to be saved as .PNG files. However, you add the “#” symbol to syntax lines that have the png() and dev.off()commands, which will cause these lines to be read as comments and display images in the R console instead of being saved as .PNG files. It can be helpful to display plots to the R device, rather than save to .PNG files, when creating visuals, modifying syntax, or troubleshooting, and then only saving the .PNG file when the final image has been worked out.

Occasionally, multiple PNG connections can become accidentally left open, which causes unusual behavior where images aren’t saved or displayed properly when calling plotting commands. If this happens, you may close out any open PNG connections by repeatedly entering “dev.off()” in the R console until you get an error message saying the “null device” cannot be closed.

Comments are included in the syntax files (beginning with “#” symbol) to help explain the general flow of what we are doing. We cannot comment on every option and feature we used to create these data visualizations, but more information can be learned by using the R documentation (e.g., typing ?png will return documentation for the png function) and free online tutorials (e.g., Quick-R).

You will need to install a few libraries, including lavaan, semPlot, and gplots. If these are not installed, you will get an error message when the library() command is called. You can install libraries from the dropdown menu in R (Packages > Install Packages…) or by using the following command:

install.packages(c("lavaan", "semPlot", "gplots", "stargazer"))