

My Final Year

Writing and building tools in R

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3 March 2020

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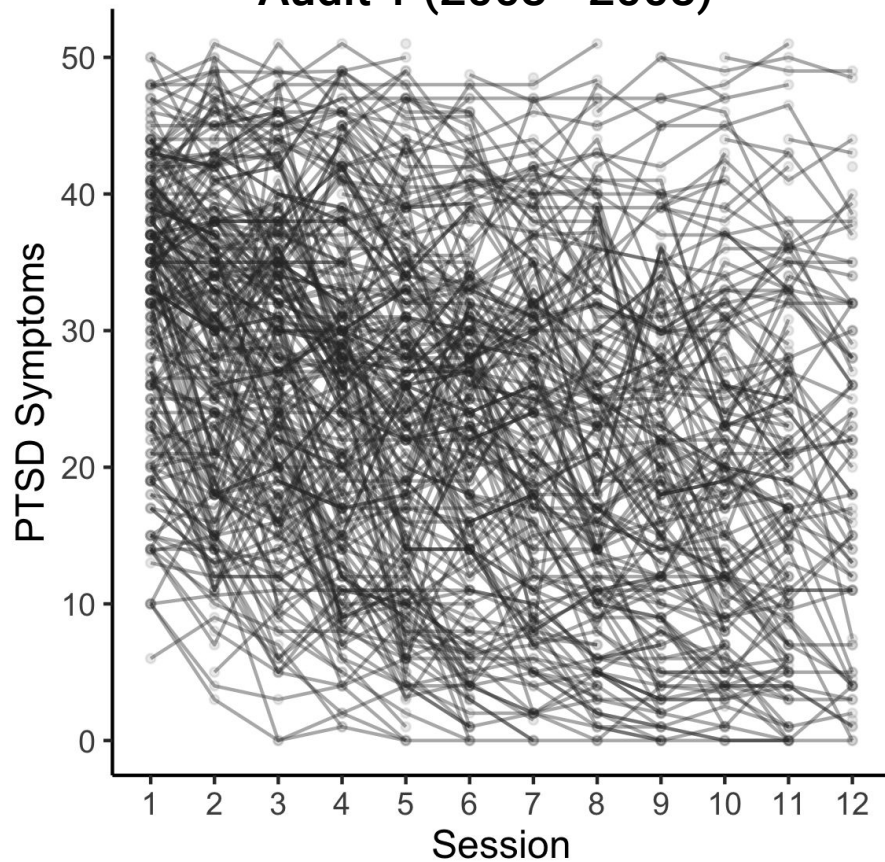
Cognitive Therapy for PTSD Works

Elaborate
trauma memory

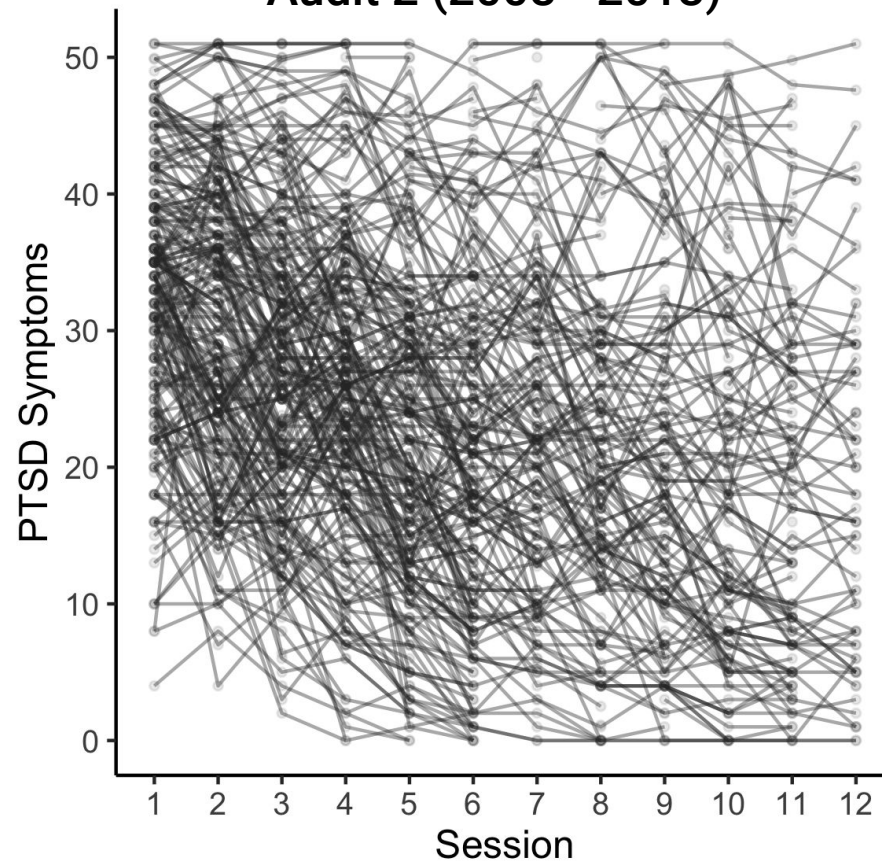
Identify and modify
problematic
appraisals

Give up unhelpful
coping strategies

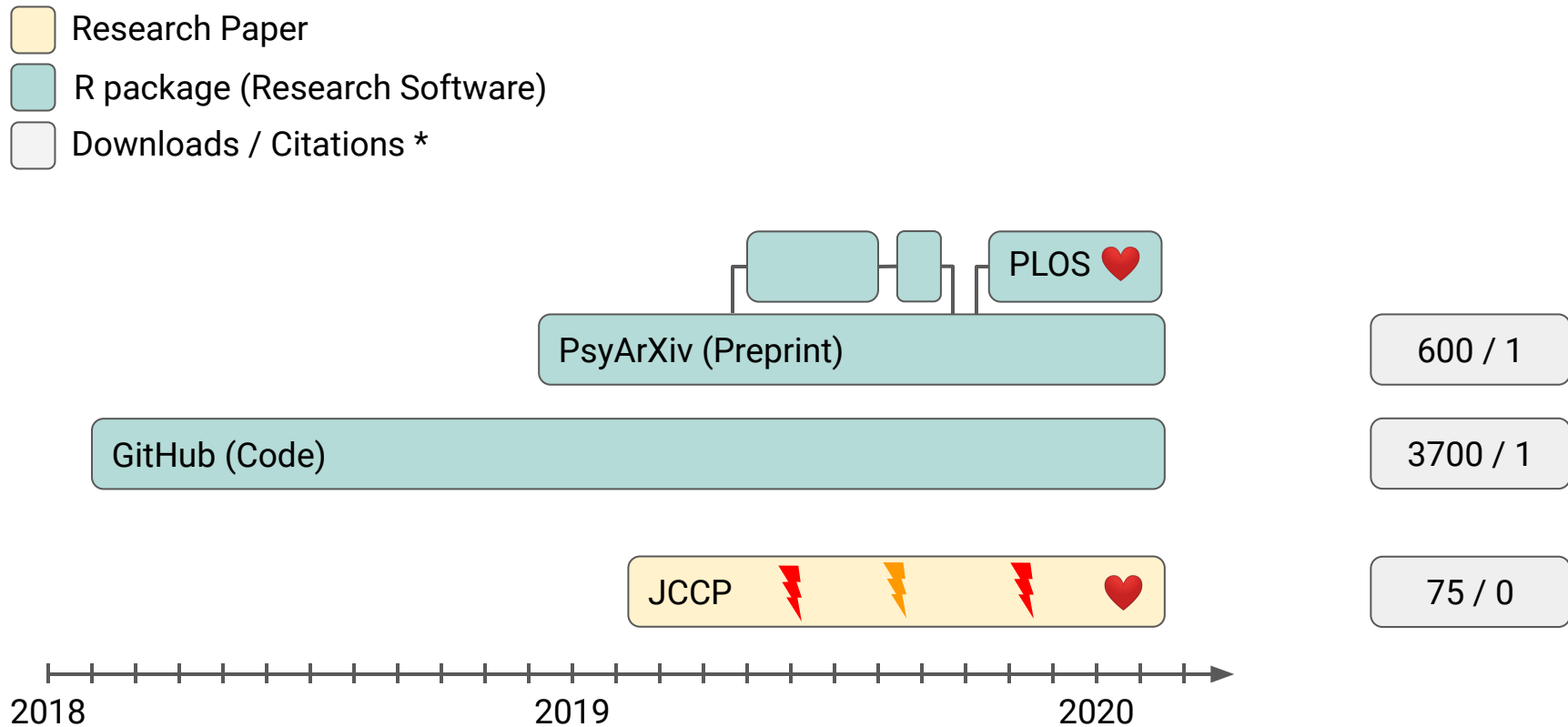
Audit 1 (2003 - 2008)



Audit 2 (2008 - 2013)



The journey of getting my first two papers published



Research

Sudden Gains

Software

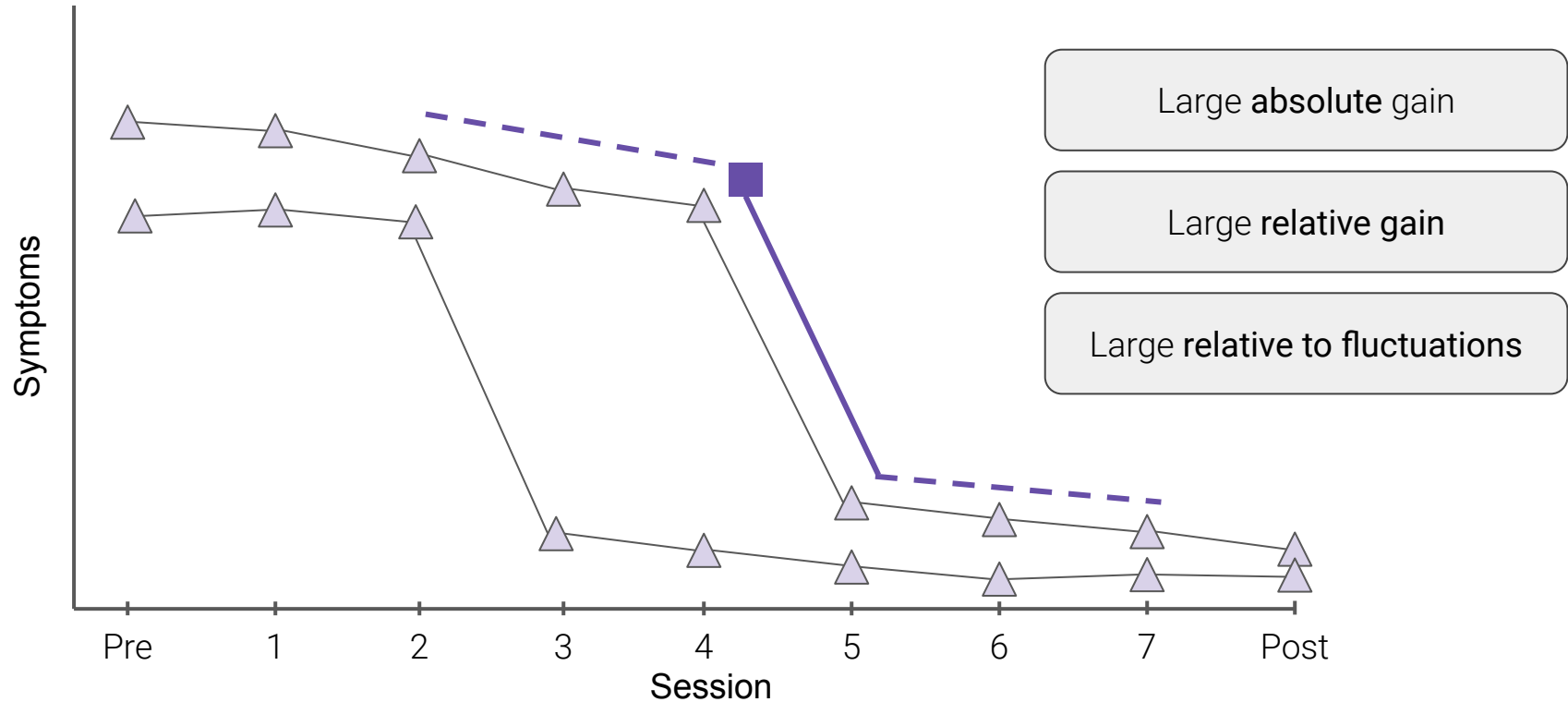
Research

Modeling Change

Software

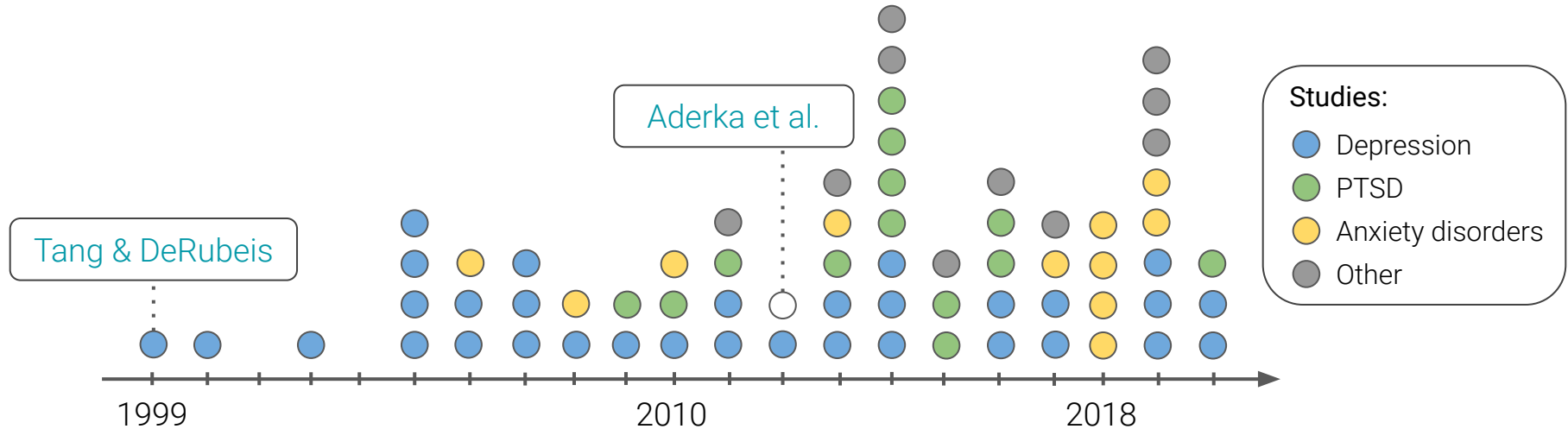
Sudden Gains

What are sudden gains?



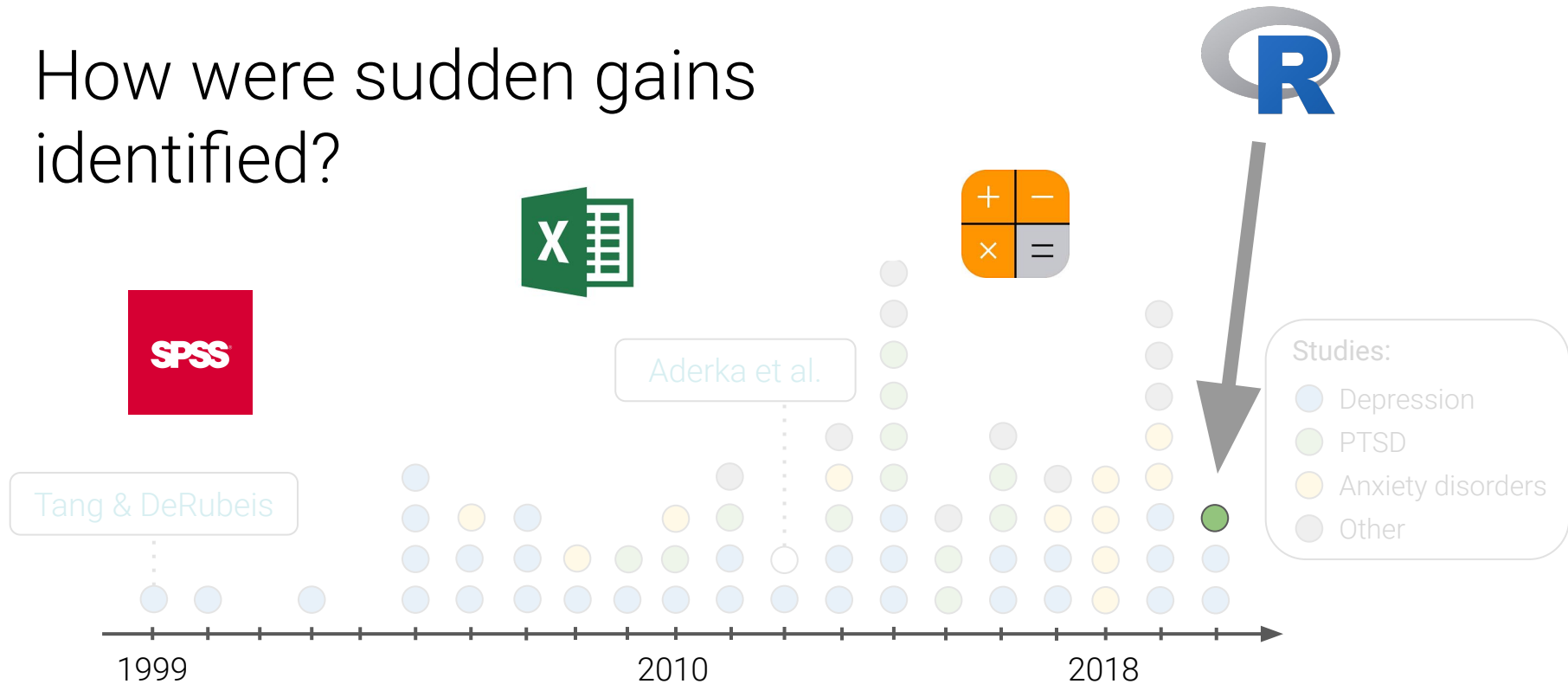
* Definition based on Tang & DeRubeis (1999).

Sudden gains studies in the literature

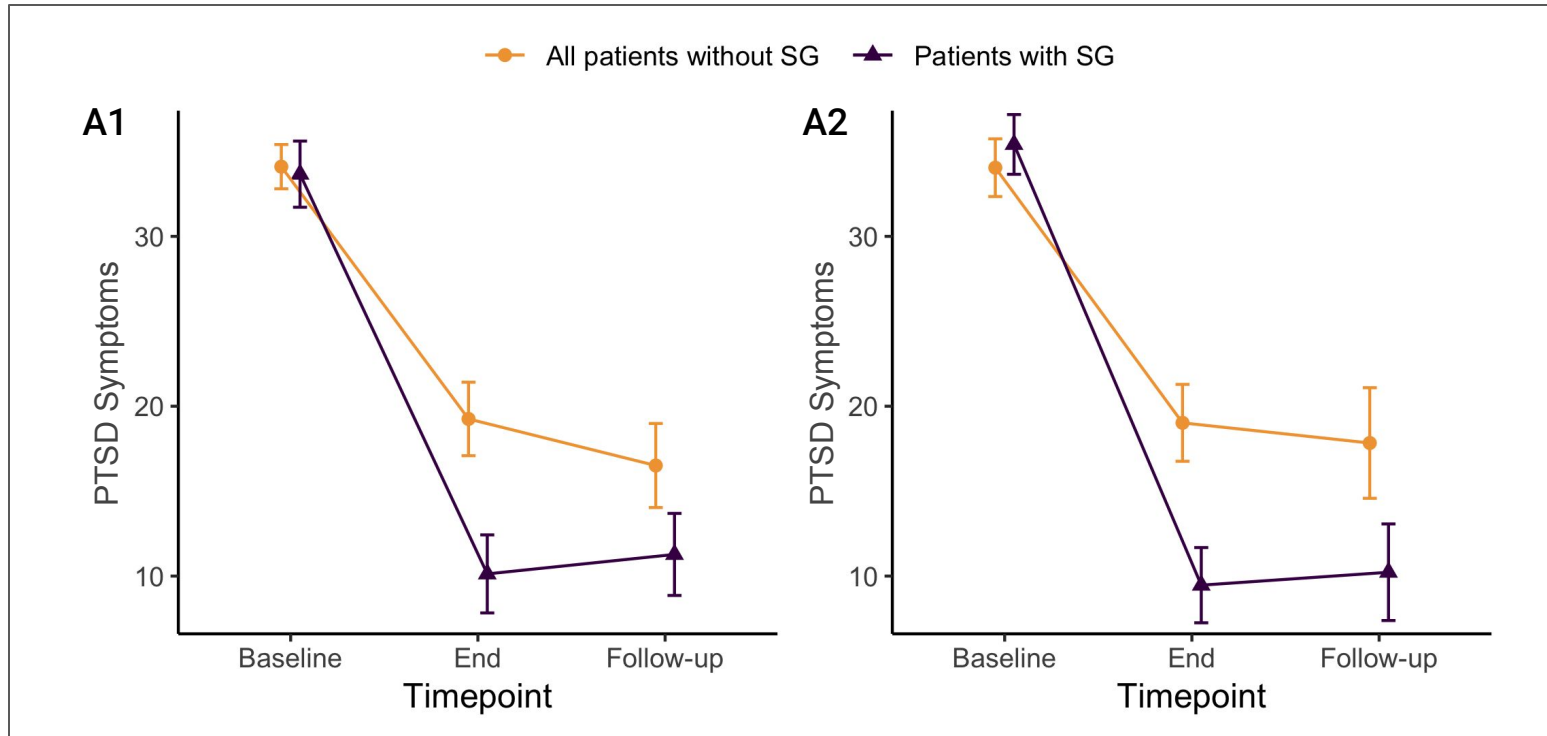


Sudden gains studies with open code

How were sudden gains identified?

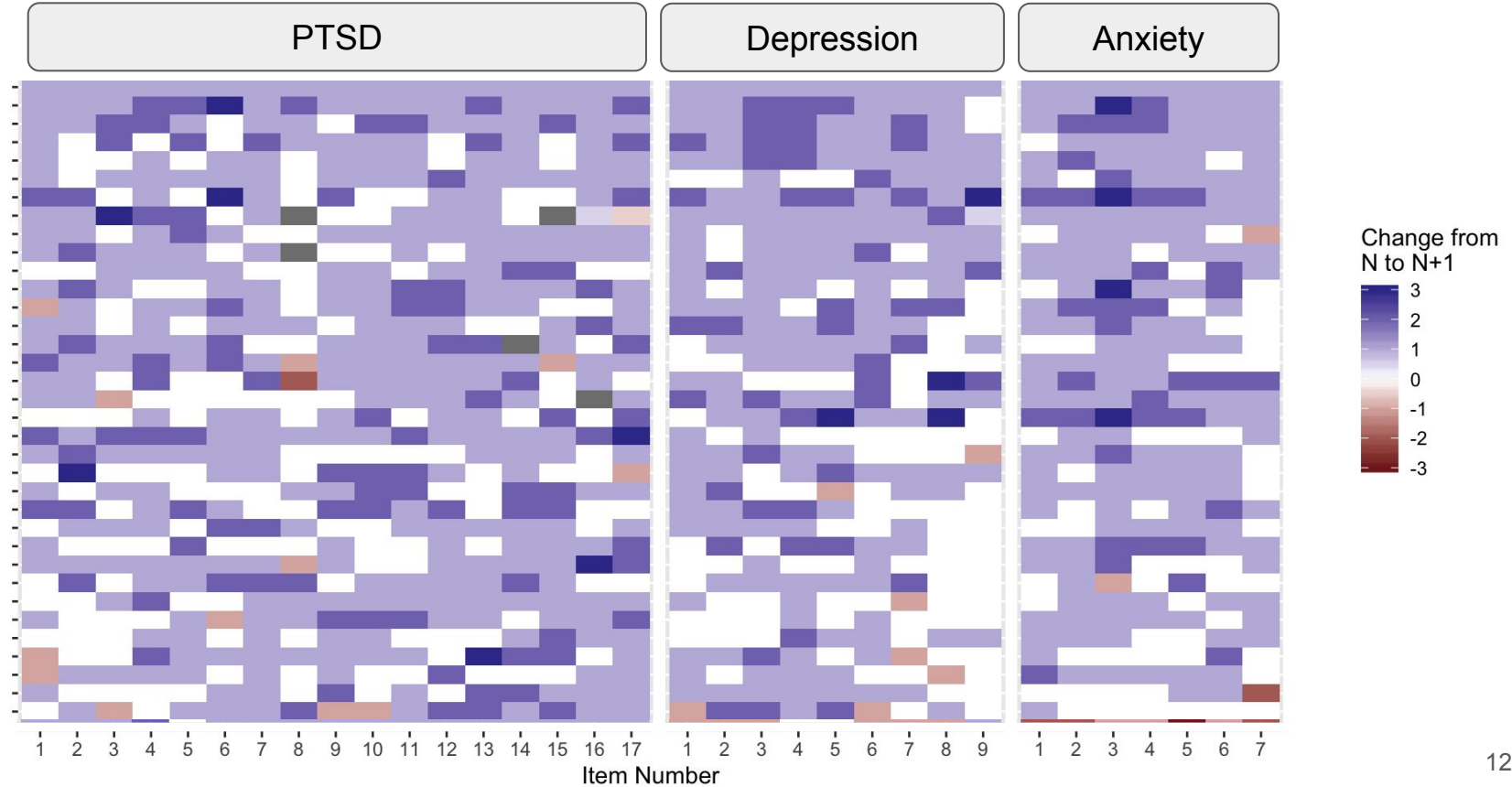


Why are sudden gains interesting?

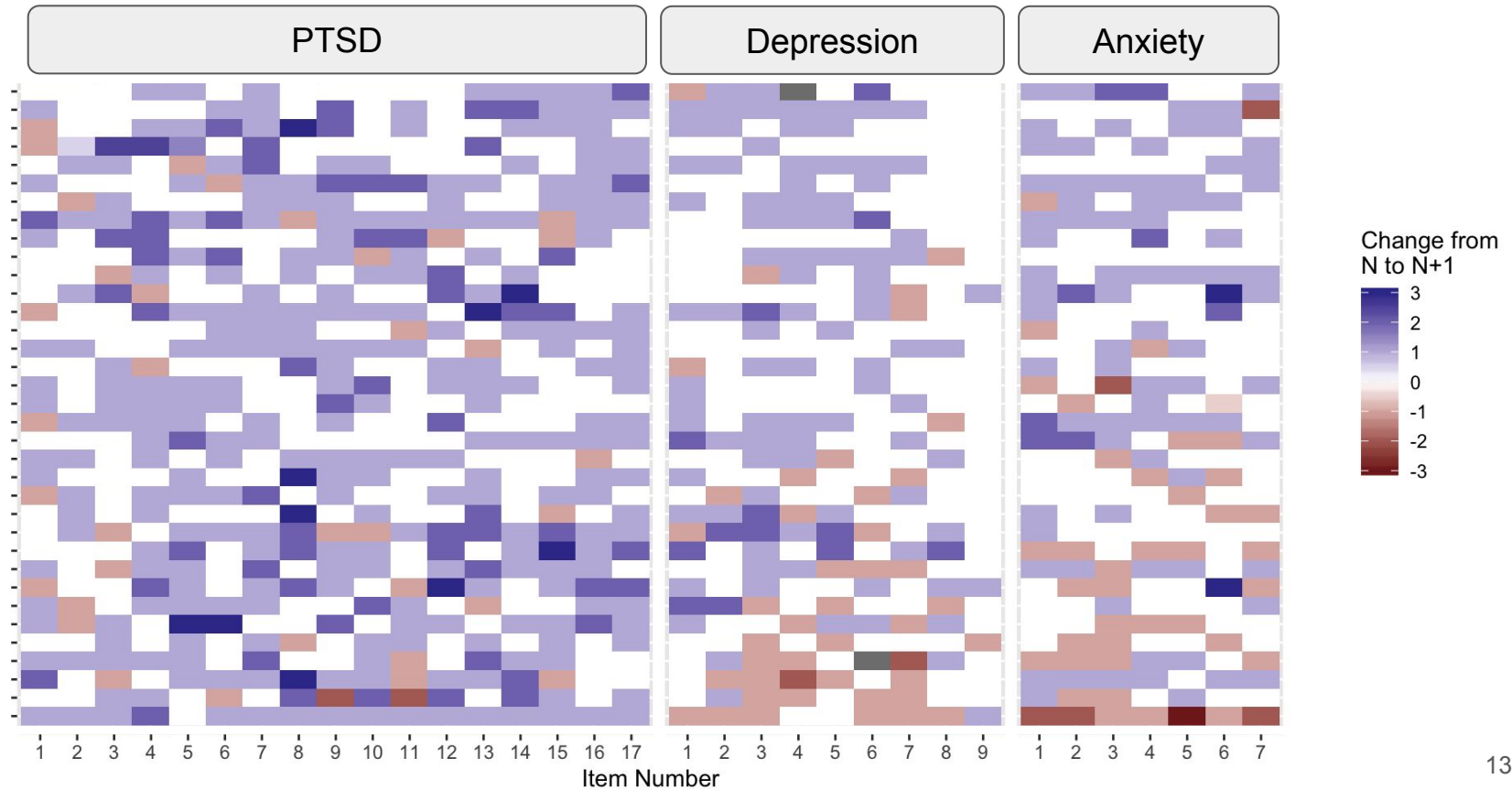


* Results from Wiedemann et al. (2020). SG = Sudden Gain. Sample 1 (A1): $n = 248$, Sample 2 (A2): $n = 234$.

What changes during sudden gains?



What changes during sudden gains?



suddengains

Sudden gains are large and stable improvements in an outcome variable between consecutive measurements, for example during a psychological intervention with multiple assessments (Tang and DeRubeis, 1999). The R package `suddengains` provides a set of tools to facilitate sudden gains research. It identifies sudden gains or sudden losses while allowing to apply adaptations of the standard criteria. It handles multiple gains by creating two datasets, one structured by sudden gains and one by participants. It also implements a function to specify which sudden gains to choose in case of multiple gains (e.g. the earliest or largest gain).

An interactive web application `shinygains` illustrates the main functions of this package and allows users to explore and understand the impact of different methodological choices.

To learn more about the background of this package see our preprint on [PsyArXiv](#). We have also created an open [Zotero group](#) collecting all the literature looking at sudden gains in psychological therapies. Please let me know if I missed anything or join the group and add papers yourself.

Installation

You can install the released version of `suddengains` from [CRAN](#) with:

```
install.packages("suddengains")
```

And the development version from [GitHub](#) with:

```
# install.packages("devtools")
devtools::install_github("milanwiedemann/suddengains")
```

Links

Download from CRAN at <https://cloud.r-project.org/package=suddengains>

Report a bug at <https://github.com/milanwiedemann/suddengains/issues>

License

[GPL-3](#)

Citation

[Citing suddengains](#)

Developers

Milan Wiedemann

Author, maintainer 

Mental Health Research UK

Funder

Wellcome Trust

Funder

[All authors...](#)

Dev status

build failing

Authors

Milan Wiedemann. Author, maintainer. 

Graham M Thew. Contributor. 

Richard Stott. Contributor. 

Anke Ehlers. Contributor, thesis advisor. 

Mental Health Research UK. Funder.

Wellcome Trust. Funder.



Mental Health Research UK. Funder.

```
library(suddengains)
```

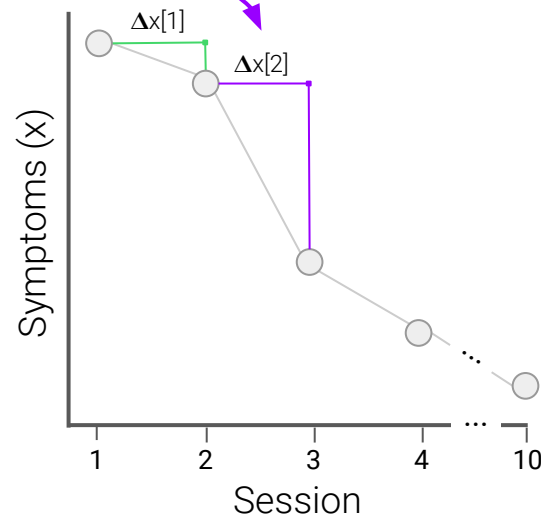
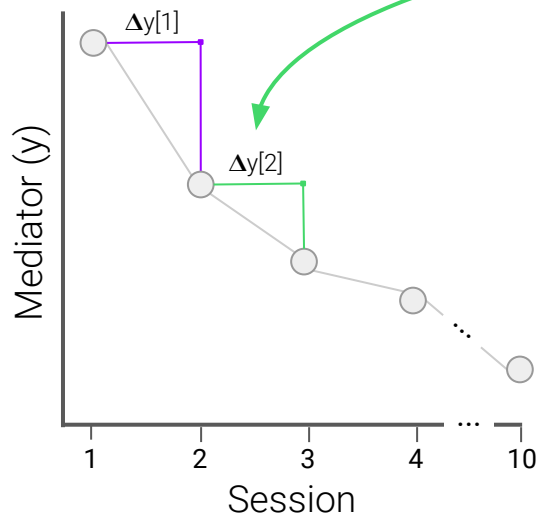
```
runApp(shinygains)
```

Modeling Change

Looking at change to change

Negative appraisals

PTSD symptoms



* Method implemented in the  package *lcs*m (Wiedemann, 2020) using *lavaan* (Rosseel, 2012). Overview of method in Grimm et al (2012).

Tools to help understand latent change score modeling

shinychange

Overview

Generate lavaan Syntax ▾

Simulate Data ▾

Fit Model ▾

Options:

Data Characteristics

Select Parameters

Measurement Points:

3

Note: Number of repeated measurement points.

Variable Name:

x

Note: Variable name to be used for generating lavaan syntax, changes wont show on the path diagram. Variable name should start with a letter.

Results:

lavaan Syntax

Path Diagram

Note: lavaan syntax for the selected data characteristics and model parameters. This syntax includes comments describing the different sections of the model and can be modified by hand. Modified syntax could be used in the 'model' argument of functions from the lavaan package. Observed scores in the syntax are the variable name followed by a number indicating the measurement point. Latent true scores have the prefix 'l' (for latent) followed by the variable name of the observed score. Change scores have the prefix 'd' (for delta) followed by the variable name of the observed score.

```
# Specify latent true scores
lx1 =~ 1 * x1
lx2 =~ 1 * x2
lx3 =~ 1 * x3
# Specify mean of latent true scores
lx1 ~ gamma_lx1 * 1
lx2 ~ 0 * 1
lx3 ~ 0 * 1
# Specify variance of latent true scores
lx1 ~~ sigma2_lx1 * lx1
lx2 ~~ 0 * lx2
lx3 ~~ 0 * lx3
# Specify intercept of observed scores
x1 ~ 0 * 1
x2 ~ 0 * 1
x3 ~ 0 * 1
# Specify variance of observed scores
x1 ~~ sigma2_ux * x1
x2 ~~ sigma2_ux * x2
x3 ~~ sigma2_ux * x3
# Specify autoregressions of latent variables
lx2 ~ 1 * lx1
lx3 ~ 1 * lx2
# Specify latent change scores
```

See also Kievit et al. (2018), Grimm et al (2017), and Ghisletta et al (2012).

```
library(lcsm)
```

```
runApp(shinychange)
```



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write, write, write ...