Tutorial of network analyses of ESM data: the lagnetw package

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Abstract

 Network analyses have many applications. In this tutorial we focus on networks build with data obtained with the experience sampling method (ESM). The networks are directed, the relations between the variables in the network are directed because lagged predictors are used. An arrow in the network represents an effect from a variable measured at t-1 on another variable measured at t or on itself measured at t.

In this tutorial we will show how the package "lagnetw" can be used to do a network analysis.

Keywords: network ESM lags Multilevel

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Introduction

For this tutorial a network is defined as a visual representation of a set of variables together with the relations between these variables. The aim of such a network is to better understand the underlying process, which has realized the measurements on the variables. etc. etc. Examples of the network appraocj in personality research are in (Costantini et al., 2015). Other papers discuss the psychological networks and their accuracy (Epskamp, Borsboom, & Fried, 2018) and controversial issues related to networks for psychopathology (Bringmann & Eronen, 2018).

The `lagnetw` is in the R package `lagnetw`. This package can be installed from Github and then loaded using the `library()` function:

```
devtools::install_github("PeterVerboon/lagnetw")
```

```r
library(lagnetw)
```

ESM

Example

Indices of centrality

To better unbderstand the role of the variables in the network several statistics for a network have been developped, which are called indices of centrality.

Note

We used R (Version 3.5.1; R Core Team, 2018) and the R-packages *lagnetw* (Version 0.0.0.9000; Verboon, 2019), and *papaja* (Version 0.1.0.9842; Aust & Barth, 2018) for all our analyses.

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