Simulating the potential of applying recurrence quantification analysis on ecological momentary assessment data

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Introduction

Ecological momentary assessment has made it possible to construct time series from self-report scales. This allows one to capture the dynamics of mood over time. While many .

Recurrence quantification analysis is one of the methods to analyse time series data. This method aims to capture repeating patterns in time series by quantifying which observations x_{t+y} are equivelent to x_t, where t refers to the time of an observation, x to an observation, and y is the distance to t where that point recurs.

Traditionally, this method is used in the physical sciences, where measurements can both be retrieved much more frequently and be measured at a higher resolution, up to a certain decimal point. Measures in ecological momentary assessment often rely on likert scales, and have much lower precision.

For pratical reasons, we assume that these ordinal measurements reflect an underlying continuous measure, even though that is somewhat contentious,