UKE Paper of the Month September 2024

Predicting the outcome of psychotherapy for chronic depression by person-specific symptom networks

Lea Schumacher, M.Sc.; Jan Philipp Klein, MD; Martin Härter, MD, PhD; Martin Hautzinger, PhD; Elisabeth Schramm, PhD; Levente Kriston, PhD

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ABSTRACT:

Psychotherapies are efficacious in the treatment of depression, albeit only with a moderate effect size. It is hoped that personalization of treatment can lead to better outcomes. The network theory of psychopathology offers a novel approach suggesting that symptom interactions as displayed in person-specific symptom networks could guide treatment planning for an individual patient. In a sample of 254 patients with chronic depression treated with either disorder-specific or non-specific psychotherapy for 48 weeks, we investigated if person-specific symptom networks predicted observer-rated symptom severity at the end of treatment and one and two years after treatment termination. Person-specific symptom networks were constructed based on a time-varying multilevel vector autoregressive model of patient-rated symptom data that were collected at each treatment session. We used statistical parameters that describe the structure of these person-specific networks to predict therapy outcome. First, we used symptom centrality measures as predictors. Second, we used a machine learning approach to select parameters that describe the strength of pairwise symptom associations.

We found that information on person-specific symptom networks markedly improved the prediction of observer-rated depression severity at treatment termination compared to conventional predictors (e.g., baseline symptom severity). This was also shown for predicting observer-rated depression severity at one- and two-year follow-up. Pairwise symptom associations were better predictors than symptom centrality parameters for depression severity at the end of therapy and one year later. Replication and external validation of our findings, methodological developments, and work on possible ways of implementation are needed before person-specific networks can be reliably used in clinical practice. Nevertheless, our results indicate that the structure of person-specific symptom networks can provide valuable information for the personalization of treatment for chronic depression.

STATEMENT:

Our work provides the first empirical evidence for the potential value of person-specific psychological symptom networks in clinical practice. We showed that person-specific symptom networks entail relevant information for assessing the effectiveness of a treatment for a given individual. This opens new avenues for personalized psychiatry and psychotherapy.

BACKGROUND:

This study is part of Lea Schumacher`s PhD thesis in the research group of Levente Kriston, who holds a professorship at the UKE since 2021. Both research psychologists have a strong interest in understanding dynamic symptom interactions and their role for mental health treatments. The work was primarily conducted at the Department of Medical Psychology, funded by the appointment budget for Levente Kriston. The Department of Psychosomatic Medicine and Psychotherapy and the Department of Medical Biometry and Epidemiology participated in the original clinical trial, of which data were used.