

# How do we solve mental health problems such as depression?

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We need to take a different approach to the problem. We must not only see symptoms such as tiredness and anxiety as signs of a disorder but also make them part of a bigger picture, of a network. That way, we can

discover how these symptoms are interlinked and sustain mental health problems. Together with his team, Denny Borsboom has developed the techniques that are needed to create a network. "Every situation requires a different technique, and that's what we are providing," he states.

"Conventional psychology regards problems that occur in [psychological disorders](#) purely as '[symptoms](#),' as a sign that something is going on. For example, if someone is sleeping badly, can't concentrate properly or has no self-worth, these are all symptoms of potential [depression](#)," says Denny Borsboom, professor of Validity of Empirical Research in Psychology. "In the [network](#) approach, we take a different perspective on mental health problems. We don't see symptoms so much as signs of an underlying disorder that causes all these symptoms but as part of a bigger system, of a network of elements that impact on each other."

Problems that are observed in a particular disorder often have an impact on each other, explains Borsboom. "If you're sleeping badly, for example, you will get tired; this will cause concentration problems, and you'll make mistakes, which in turn will make you feel guilty and worthless, so you'll become anxious, keep turning things over in your head, and, as a result, no longer be able to sleep."

According to Borsboom, this creates a vicious cycle in which these problems constantly impact on each other. "The symptoms give rise to each other, and as a result, move up and down together, a bit like a flock of birds. We refer to groups of symptoms that have a particularly strong impact on each other as a disorder—depression, for example."

To understand which elements relate to each other in a network and in what way, you need models. These are extremely difficult to produce, but this is exactly what Borsboom and his team worked on thanks to a grant from the European Research Commission.

"The idea that symptoms such as sleep deprivation and concentration problems affect each other is nothing new, but a method to investigate and highlight this is. With our models, we process data on individuals into a network that shows how all kinds of emotions and behavior impact on each other. We can even use this to make predictions," says Borsboom.

These data come from people who answer all kinds of questions about how they are feeling, how they are sleeping, what they are eating and drinking, and what activities they are performing. And networks can be created for different situations.

"They may relate to one person you've been following for a long time. But they can also relate to a large group of people who all say at the same time what their symptoms are, or a large number of people you've been following for a long time. Every situation calls for a different technique for analyzing the data and creating a network," says Borsboom. According to him, the models are already being used extensively, even beyond the field of mental disorders.

## **What impact can a network approach have on therapy?**

And how will this make a difference to people if they are undergoing therapy, for example? "We are methodologists. In other words, we develop methods and demonstrate that we can create a network structure with the help of data," explains Borsboom. "Now, other experts have to translate this into practice." He says that much work is being done in this regard.

And how could this work in practice? "In consultation with your [therapist](#), for example, you will supply data about yourself, about your

emotions and behavior. Using a network model, the therapist can then get a better idea of how your problems and situation impact on each other and sustain your [mental health](#) problems. This will become clear to you too. From this, a therapist should be able to determine how and where to intervene to ensure successful treatment."

**More information:** In [Network Psychometrics with R](#) the researchers present their techniques for creating different network models

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