

Stop Oversimplifying Mental Health Diagnoses

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Diagnoses often oversimplify complex mental health problems. How can researchers and practitioners avoid oversimplifications, improve research, and provide more effective and customized clinical practices?

A recent article published in [Current Directions in Psychological Science](#) presented the advantages of studying mental health problems as systems, not syndromes. The author, APS Fellow Eiko Fried, a psychologist and methodologist at Leiden University, explains this new approach to how we see and classify mental health problems and how mental-health professionals might create better tools to address early risk of certain conditions, such as depression.

Learn more about this topic and about Eiko Fried in this related content from APS:

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Unedited Transcript:

[00:00:12.530] – Ludmila Nunes

Complex mental health problems are many times oversimplified by diagnosis. What can researchers and practitioners do to avoid these oversimplifications and improve research and clinical practice practices? This is under the cortex. I am Ludmila Nunes with the association for Psychological Science to speak about a new approach to how we see and classify mental health problems and how to create better tools to address early risk of certain conditions such as depression. I have with me Eiko Fried from Leiden University. He is the author of an article published in Current Directions in Psychological Science examining the advantages of studying mental health problems as systems and not syndromes. ICO, thank you for joining me today. Welcome to under the cortex.

[00:01:04.570] – Eiko Fried

Thanks for having me.

[00:01:06.390] – Ludmila Nunes

So I've been following your work for a little bit now, and what you propose in this article and in other articles you've written is that we take a different perspective on how we see and interpret mental health problems.

[00:01:24.890] – Eiko Fried

Yes. And I want to stress straight up that the work we've been doing is mostly targeted at scientists, not so much as clinicians. Because if you talk to clinicians psychotherapists psychiatrists who are well trained and have been doing this for a while, many of them will understand the person as an individual and treat them as an individual. Diagnoses are less relevant for most practitioners in daily practice. But if we look at how scientists, me included, have studied mental health problems, what we've largely done is we've studied diagnoses. For example, if you look at the largest genetic studies, we have compared people who were diagnosed with major depression, with people who are healthy control subjects, and then we've compared their genes or maybe neuroimaging markers or risk factors. But every clinician and most researchers will acknowledge that people with depression are very different from each other. And so this approach is a little bit flawed in terms of comparing these two groups.

[00:02:20.670] – Ludmila Nunes

So what you propose is that researchers, instead of creating these groups that are categorized by a given mental health problem, they look deeper at the symptoms right. And how these can be connected.

[00:02:36.670] – Eiko Fried

Yes, exactly. I brought an example from my own life to hope to elucidate how this would work. So I had the huge honor in 2019 to visit Kenneth Kendler, his scholar. I look up to very much, and I spent a few months with him, and he's an avid cyclist and gave me his sort of secondary vintage, very old, very expensive bicycle and said I could take good care of it, don't break it. And I immediately broke it, unfortunately, but I could fix the bicycle. And now we get to talk about systems, because the bicycle is a

very simple system. The bicycle, I move the pedal, the pedal moves the cogwheel, which moves the chain, which moves the wheel, and so forth. And in simple systems, the macro behavior of the system is fully determined by all the individual components, the micro components of the bicycle. So in simple terms, I could fix the bicycle and restore it to its functioning state at the macro level by simply going through all the components and fixing them individually. But in complex systems, this doesn't really work very well. And an example here is lakes in the Netherlands, where I work now.

[00:03:40.650] – Eiko Fried

We have many beautiful lakes here. They're blue and shiny and fresh, but sometimes these lakes turn into turbid lakes into these green, smelly states. And ecologists have been trying to figure out for many decades how to forecast when a lake will turn into this alternative sick attractor state. And they haven't been able to do that by fixing all the components, like in my bicycle example, fish content, oxygen percentage pollution, sunlight exposure. They were only able to turn back these lakes into the original states once they studied these systems as systems relations between these components. And I think the lake matter here is a much better analogy for mental health than the bicycle metaphor. I think we need to understand mental health systems as within person systems over time and really zoom in onto these processes happening in people.

[00:04:39.930] – Ludmila Nunes

So the idea is that these components, which could be symptoms, interact with each other, which makes we can be fixing one symptom or one component, but that doesn't mean that we are addressing the whole interactions within the system.

[00:04:57.790] – Eiko Fried

Exactly. And fixing individual components might not help you move the system to another alternative stable state. Just to add this here, the early work we've been doing on these systems has been focused on symptoms because they're often assessed and they're readily available for analysis. But now the work that we and the field have been focusing on is really more about affect states and then influences into the system that might push you over the edge, things that matter for your daily wellbeing. How connected do I feel with my partner? How well is my relationship going? What am I doing today? Have I been physically active? Did I have terrible events or fantastic events today? So we try to measure and track them over time because I think it is relevant to determining how somebody is.

[00:05:43.090] – Ludmila Nunes

Doing so these components go beyond the person, and now researchers are starting to include components from the environment the person is in.

[00:05:54.910] – Eiko Fried

Perfect. You said it in much fewer words than I did before. Yes, exactly. And I was at the honor together with Don Robin to edit a special issue for BMC medicine. And the editorial we wrote is called Systems all the way down. Because I truly believe that we, as an ecosystem, are embedded in many other

ecosystems. Obviously, my family system influences my own system, the political system we just had elections in the US. Influences my system for some people more than others, the school system, education system, and so on. So it's hard conceptually, hard to distinguish these systems from each other, of course, but it is high time, and sociologists have shown us the way there to study these environmental and social influences and others and the impact they have on these human ecosystems over time.

[00:06:41.490] – Ludmila Nunes

So I think our listeners can understand this conceptually. It makes a lot of sense. But what can researchers do specifically to measure these interactions, to see mental health problems as this system?

[00:06:57.270] – Eiko Fried

Right. So clinicians have shown us the way there because if you are a therapist and you do cognitive behavioral therapy, there are different words for this. But often what they do in the first few sessions is called a functional analysis. And in this session, what you do is you sort of draw out the system with a person you have in front of you, with your client. Oh, I see. When you sleep really badly, you really have a terrible day at work, and the next evening you're going to have a big argument with your partner, and then you develop suicidal thoughts, things like that. And in mental health research so far, for good reasons, it was really difficult to have measures in the moment in people's lives. We focused on cross sectional data, big between subject data sets. But we have the technology now. We have smartwatches and smartphones to really look and zoom into people's daily lives. And so in our work, and that's also work other people have been doing for a good decade now, you can use a smartphone app to ask people questions multiple times a day. There are many challenges here, of course.

[00:07:56.700] – Eiko Fried

It's very difficult to do that in populations that are already very burdened. People who are working very hard or people with severe psychopathology. They have a very hard time, of course, answering many questions multiple times a day. But it's feasible to some degree in all populations. You just need to ask the right questions at the right intervals. And then there are also smart watches or other wearable devices that can give us basic information about stress levels, perhaps heart rate activity, their sensors for sunlight exposure, which give us a proxy where people are, if they're outside what they're doing in their life, these sort of information can be collected. Some are more burdensome to collect than others. For participants, there are big debates about privacy, of course, but in principle, this allows us to map out these systems and to study people as systems. We need to measure them as systems in the first place.

[00:08:52.810] – Ludmila Nunes

And although this approach has major implications for how research in clinical science is being conducted, there can also be some practical implications of looking at mental health issues as systems.

[00:09:09.390] – Eiko Fried

Yeah, I believe that the maybe most relevant implication for studying people as systems is to predict onset of transitions into mental health states. So, if I may, I can briefly summarize what we're doing in my lab at the moment. We are trying to build an early warning system for depression by mapping out people's systems. So if you think about the flu, for example, if I want to forecast if you get a flu in the next couple of weeks, to some degree, yes, I can follow your symptoms over time. But developing flu symptoms is not the best predictor of getting the flu, because you already have the flu when you have the flu symptoms. Same with cancer or HIV. Once you get problems of a disorder, the disorder is mostly there to some degree. And so monitoring sad mood or suicidal ideation, of course, needs to be done to forecast transitions into depression. But there's evidence from these systems that the forecasting works better on the level of the relations between the components than on the level of the components themselves. So the system level information might be really helpful in forecasting transitions into depression or other mental disorders because it helps us map out how resilient people are at the moment.

[00:10:22.500] – Eiko Fried

Now, imagine everybody goes through minor stressors every day. Sometimes I don't sleep well enough because I just need to work at night. Sometimes my boss might yell at me or I might have an argument with my partner. And from a systems perspective, vulnerable systems are much more likely to tip or to transition into an alternative stable state than resilient systems. And using these EMA ecological momentary assessment measures on the smartphone or these smartwatches mapping out somebody's system can help us determine how resilient or vulnerable they are right now. And we can do that, for example, by looking at stressors they have in their daily life and then see how long it would take them to recover from these stressors. So there's a way in system science to measure we call that engineering resilience. There's a way to measure the length it requires your system to return to a stable state. And in a vulnerable system, this will take much longer than in a resilient system. And using these sort of information on a statistical level can enable us to try to understand how resilient somebody is at the moment in their life.

[00:11:30.170] – Ludmila Nunes

So this is almost like when we are trying to take care of a pool and we have to balance all the chemicals. If they are perfectly balanced, we say the system is at equilibrium and it's way more difficult to disrupt it. But for example, if just one chemical is off, all it takes can be just one day. That was too hot, too sunny. And then the whole system seems to break down and your pool looks terrible. And then it takes longer. If we have more than one chemical aiding to this destabilized pool to recover the initial equilibrium state.

[00:12:09.290] – Eiko Fried

Exactly.

[00:12:10.970] – Ludmila Nunes

And you're precisely using this knowledge and the statistical analysis to try to detect early depression signs in students.

[00:12:22.990] – Eiko Fried

Exactly. In the Warren D study that we're currently carrying out with my two PhD students Ricotta Poppat and Kalata Ribbler at Leiden University were collecting data in 2000. Students over two years. And the first three months of this data collection is concerned with smartphone and smartwatch assessment. So we really zoom in into people's daily experiences. We have a preprint online at the moment where folks who are listening to this can find all the measures we're using and all the further information on the study if they're interested. And we hope to be able to map out these people's systems, answer many other questions on the site, such as how similar are these systems across people? And then try to build an early warning system for depression. That's sort of the final goal of the project. So after these three months, we follow people every three months with a short questionnaire to see, basically if they transition into depression or some other mental health problem, if they develop severe stress, if they're taking antidepressants, if they've seen a psychiatrist, and so on. We do this for two years, and eventually we hope to build an app, a free app people can use that is similar to a weather forecasting app or perhaps a period tracking app where people get a prediction of how the next couple of weeks will be going.

[00:13:38.070] – Eiko Fried

And yes, eventually this will hopefully help us solve the big problem that prevention for depression works if you apply to the right person at the right moment. But we just don't know when that would be and which this person would be.

[00:13:52.730] – Ludmila Nunes

And you've been mentioning the importance of measuring these things, because without measuring them, we cannot make any predictions. So this leads me to ask you about another article that you wrote a couple of years ago, but I found it very interesting about the problems with measurement in psychological science, and specifically related to clinical psychological science.

[00:14:19.490] – Eiko Fried

Yes, that paper was led by my friend and co author Jessica Flake, who's at McGill in Canada right now, and it's called Measurement Measurement. And the paper is sort of about what we call questionable measurement practices. So in our field, we've been talking about questionable research practices a lot. Folks who listen to this will know what phacking is. Probably you basically try a couple of analyses, and you do that until you find something significant. Selective reporting where you do a few things, but you only really report the analysis that is significant in the end. And both Jessica and I work in different literatures. Jessica are more in personality and social, and I work more in clinical psychology. And we sort of found each other on Twitter, and we realized that we've come across the same questionable measurement things people have been doing in these areas. For example, in my field, I often read clinical trial papers for depression these days. They're often done with psychedelic drugs. Back in the day, we still had antidepressants and psychotherapy trials and so forth. And what is very common there is that researchers use three or four different depression scales that they give people at time one and time twelve, week twelve, for example, at the exit of the trial.

[00:15:32.290] – Eiko Fried

And then the question is if your treatment outperforms placebo, for example, but because you gave them four different slightly different measures of depression, you have the possibility now to analyze all four scales and just report the one that is significant, although the other three do not show a significant difference between the placebo group and the, for example, antidepressant group. Or worse, what is called outcome switching is very common, where you register your primary outcome to be one of these particular depression scales. That's the one you should report in the abstract. And the other three outcomes are secondary measures, but people just then don't report actually the primary outcome, but they report a secondary outcome and are required about the primary outcome happens very often. And so all of this led us to write this paper on questionable measurement practices. And so in the paper we have a table with six questions we ask, and we try to encourage researchers, journalists, editors, and so forth to ask these six questions. And if all six questions are answered satisfactorily, then you have no more questions left, and the measurement is completely valid.

[00:16:38.110] – Ludmila Nunes

So it's not even that we know that these researchers are not doing their work right. They don't even report it. So there's no way for us to know what they did. Exactly. If we want to try to replicate those results, we don't know what to do, we don't know what they did. And of course, this raises concerns. Researchers should be reporting all the details in their investigation, so things can be more transparent and more open.

[00:17:09.290] – Eiko Fried

Exactly. So if you look at the RPP study, for example, the 2015 paper on the Reproducibility Crisis in Psychological Science, where the authors conducted 100 experiments, I believe in social psychology and found that many of them didn't replicate. Jessica Flake actually looked at these 100 papers or 100 studies individually and found that for the people who replicated these studies, compared to the original studies, sometimes different scales were used, or sometimes authors didn't even know what scales were used in the original study. So what does it even mean if you replicate a study or do not replicate a study, if you can use the same measurement instrument? I personally think it's mostly a lack of transparency. I don't think there's many bad faith actors in our field. That's not my main concern. And it's hard work. Being transparent about everything you do in terms of measurement is hard work. But many preregistration protocols these days will ask you about your measures in detail. There's no valid science without being transparent about your measures. That applies to psychology as it applies to any other discipline. And in the paper we use the term or. We started with the term questionable measurement practice to sort of just highlight the importance of this pocket of research that seems a little undervalued compared to how.

[00:18:22.050] – Ludmila Nunes

Important it should be and what's in the future for you.

[00:18:28.610] – Eiko Fried

So, yeah, I really enjoy having 1ft in the measurement world and 1ft in the clinical more applied world, but yeah, at the moment for me and my team, all resources are stretched to collecting smartphone and smartwatch data in 2000 people over two years. It's an incredible amount of effort. And yeah, I'm looking forward to get the data to see if we can build this early warning system for depression and then eventually also share this what I think to be one of the richest data sets in clinic. Of psychology with the community, because I think there's going to be ten or 15 years of work in the data set and we can do it all alone. So, yeah, I'm excited about getting this done.

[00:19:04.510] – Ludmila Nunes

This is Ludmilla Nunes with APS, and I've been speaking to Researcher Eiko Fried from Leiden University.

[00:19:12.520] – Eiko Fried

Thanks for having me.

[00:19:13.860] – Ludmila Nunes

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