

Researchers 'dismantle' mindfulness intervention to see how each component works

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In a new study researchers broke out the ingredients to mindfulness-based cognitive therapy to improve understanding of how each works. Credit:

Willoughby Britton/Brown University

As health interventions based on mindfulness have grown in popularity, some of the field's leading researchers have become concerned that the evidence base for such practices is not yet robust enough. A new study shows how a rigorous approach to studying mindfulness-based interventions can help ensure that claims are backed by science.

One problem is that mindfulness-based interventions (MBIs) sometimes blend practices, which makes it difficult to measure how each of those practices affects participants. To address that issue, the researchers took a common intervention for mood disorders—mindfulness-based cognitive therapy (MBCT)—and created a controlled study that isolated, or dismantled, its two main ingredients. Those include open monitoring (OM)—noticing and acknowledging negative feelings without judgment or an emotional secondary reaction to them; and focused attention (FA)—maintaining focus on or shifting it toward a neutral sensation, such as breathing, to disengage from negative emotions or distractions.

"It has long been hypothesized that focused attention practice improves attentional control while open-monitoring promotes emotional non-reactivity—two aspects of mindfulness thought to contribute its therapeutic effects," said study lead and corresponding author Willoughby Britton, an assistant professor of psychiatry and human behavior in the Warren Alpert Medical School of Brown University. "However, because these two practices are almost always delivered in combination, it is difficult to assess their purported differential effects. By creating separate, validated, single-ingredient training programs for each practice, the current project provides researchers with a tool to test the individual contributions of each component and mechanism to clinical endpoints."

In the study, the researchers randomized more than 100 individuals with mild-to-severe depression, anxiety and stress to take one of three eight-week courses: one set of classes provided a standardized MBCT that incorporated the typical blend of OM and FA. The two other classes each provided an intervention that employed only OM or only FA. In every other respect—time spent in class, time practicing at home, instructor training and skill, participant characteristics, number of handouts—each class was comparable by design.

At the beginning and end of the classes, the researchers asked the volunteers to answer a variety of standardized questionnaires, including scales that measure their self-reported ability to achieve some of the key skills each practice is assumed to improve. If the researchers saw significant differences between the FA group and the OM group on the skills each was supposed to affect, then there would be evidence that the practices uniquely improve those skills as intervention providers often claim.

Sure enough, the different practices engaged different skills and mechanisms as predicted. The FA-only group, for example, reported much greater improvement in the ability to willfully shift or focus attention than the OM-only group (but not the MBCT group, which also received FA training). Meanwhile, the OM-only group was significantly more improved than the FA-only group (but not the MBCT group) in the skill of being non-reactive to negative thoughts.

"If FA practice promotes attentional control, and OM practice promotes emotional non-reactivity, then end users can alter the amount of each practice to fit their individual needs for each skill," Britton said. "The study created validated single-practice programs that can be used by other researchers or providers for specific populations or conditions. This is the first step to an evidence-based personalized medicine approach to mindfulness."

The Science of Behavior Change

Along with co-author and epidemiology associate professor Eric Loucks, director of Brown University's Mindfulness Center, Britton is part of the five-university Mindfulness Research Collaborative. The collaborative is one of eight teams in the National Center for Complementary and Integrative Health's Science of Behavior Change (SOBC) Research Network.

The new research will appear in print in a February 2018 special issue of the journal *Behaviour Research and Therapy* titled "An experimental medicine approach to [behavior change](#): The NIH Science Of Behavior Change (SOBC)," which takes a mechanism-focused approach to studying behavioral interventions.

The Mindfulness Research Collaborative (MRC) consists of 11 mindfulness researchers across five universities, and is one of the eight teams in the SOBC Research Network who are working to advance a mechanism-focused approach to behavioral interventions. The collaborative's SOBC project "Mindfulness Influences on Self-Regulation: Mental and Physical Health Implications" seeks to identify self-regulation intervention targets that are engaged by MBIs, as well as factors that influence target engagement. The current paper describes the "Dismantling Mindfulness" concurrent clinical trial.

Britton said the SOBC approach can make mindfulness more effective for people who practice it.

"Mindfulness research in general could benefit from employing the SOBC experimental medicine approach," she said. "Little is known about how MBIs work or how they should be modified to maximize effectiveness. The SOBC experimental medicine approach will not only help MBIs become maximally effective, but also provide essential

mechanistic information that will help tailor the [intervention](#) and instructor training to specific populations and conditions."

More information: Willoughby B. Britton et al, Dismantling Mindfulness-Based Cognitive Therapy: Creation and validation of 8-week focused attention and open monitoring interventions within a 3-armed randomized controlled trial, *Behaviour Research and Therapy* (2017). [DOI: 10.1016/j.brat.2017.09.010](https://doi.org/10.1016/j.brat.2017.09.010)

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