

# M.R.I.s Are Finding Connections Between Our Brain Activity and Psychology

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In March, neuroscientists and psychiatrists from [the School of Medicine at Washington University, St. Louis, along with colleagues elsewhere, published a study in the journal Nature](#) that sparked widespread discussion in their fields. Researchers, the study noted, are increasingly using magnetic resonance imaging — which can reveal the brain’s structure and activity — to try to find links between what is seen on an M.R.I., like cortical thickness or patterns of connection, and complicated psychological traits, like cognitive ability or mental-health conditions. In theory, such so-called brain-wide association studies could yield incredibly valuable insights. Knowing that a particular neurological feature makes someone more vulnerable to autism, Alzheimer’s or another disorder, for example, could help predict, prevent or treat that condition. Likewise, if we can link certain features to desirable traits, like academic achievement, it might be possible to take advantage of that knowledge.

The problem, the Nature authors argued, is that neuroscientists often are searching for those associations in groups of study subjects that are too small, leading to results that are statistically “underpowered.” In general, they calculated, thousands of subjects should be included for a brain-wide association study to produce a finding that other studies can replicate. This was unwelcome news to many, in large part because M.R.I. machines are incredibly expensive to use, often at about \$1,000 per hour, and funding is limited.

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