

Why the mirror lies: Individuals with body dysmorphic disorder see their own faces differently

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Everyone checks themselves in the mirror now and then, but that experience can be horrifying for individuals suffering from body dysmorphic disorder, or BDD, a psychiatric condition that causes them to believe, wrongly, that they appear disfigured and ugly. These people tend to fixate on minute details — every tiny blemish looms huge — rather than viewing their face as a whole.

Now researchers at UCLA have determined that the brains of people with BDD have abnormalities in processing visual input, particularly when examining their own face. Further, they found that the same systems of the brain are overactive in both BDD and [obsessive-compulsive disorder](#), suggesting a link between the two. The research appears in the February issue of the journal [Archives of General Psychiatry](#).

"People with BDD are ashamed, anxious and depressed," said Dr. Jamie Feusner, an assistant professor of psychiatry and lead author of the study. "They obsess over tiny flaws on their face or body that other people would never even notice. Some refuse to leave the house, others feel the need to cover parts of their face or body, and some undergo multiple plastic surgeries. About half are hospitalized at some point in their lifetimes, and about one-fourth attempt suicide."

Despite its prevalence — BDD affects an estimated 1 to 2 percent of the

population — and severe effects, little is known about the underlying [brain abnormalities](#) that contribute to the disease.

To better understand its neurobiology, Feusner and colleagues examined 17 patients with BDD and matched them by sex, age and education level with 16 healthy people. Participants underwent [functional magnetic resonance imaging](#) (fMRI) while viewing photographs of two faces — their own and that of a familiar actor — first unaltered, and then altered in two ways to parse out different elements of visual processing.

One altered version included only high-spatial frequency information, which would allow detailed analysis of facial traits, including blemishes and hairs. The other showed only low-spatial frequency information, conveying the general shape of the face and the relationship between facial features.

Compared to the control participants, individuals with BDD demonstrated abnormal brain activity in visual processing systems when viewing the unaltered and low-spatial frequency versions of their own faces. They also had unusual activation patterns in their frontostriatal systems, which help control and guide behavior and maintain emotional flexibility in responding to situations.

Brain activity in both systems correlated with the severity of symptoms. In addition, differences in activity in the frontostriatal system varied based on participant reports of how disgusting or repulsive they found each image. Basically, how ugly the individuals viewed themselves appeared to explain abnormal brain activity in these systems.

The abnormal activation patterns, especially in response to low-frequency images, suggest that individuals with body dysmorphic disorder have difficulties perceiving or processing general information about faces.

"This may account for their inability to see the big picture — their face as a whole," Feusner said. "They become obsessed with detail and think everybody will notice any slight imperfection on their face. They just don't see their face holistically."

Some of the patterns, said Feusner, also appear to be similar to those observed in patients with obsessive-compulsive disorder, supporting hypotheses that the two conditions share similar neural pathways. However, future studies are needed to further elucidate the causes and development of body dysmorphic disorder.

More information: Arch Gen Psychiatry. 2010;67[2]:197-205.

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