Pigeonholed

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Being judged according to your sex, age or race isn't just unfair, says Robert Adler. Stereotypes like this can also profoundly affect your behavior and performance

DEBORAH BEST tells a story about a game her two nieces, aged three and five, were playing. "One of them was pretending to be sick, the other was taking care of her—as a nurse. I asked her why she wasn't being a doctor," says Best. "And she told me, `Girls can't be doctors!'" What shocked her, Best says, was that the children had absorbed that stereotype, despite having a psychology professor for an aunt, and even though the doctor who had cared for them since birth was a woman.

Best has spent most of her career struggling with stereotypes. It's not that she's been the subject of any particular discrimination. Her area of research, at Wake Forest University in Winston-Salem, North Carolina, is in how stereotypes form. Just like the story she tells, her work highlights how stereotypes influence us all—and far more than we would like to think.

Her studies of children have revealed that stereotypes sneak into our minds when we're far too young to evaluate them. By the age of four, children can describe their culture's stereotypes of men and women, youth and age, ethnicity and race, agreeing with stories that depict men as strong, boastful and aggressive and women as emotional and affectionate, for example. And these stereotypes infect us even if we personally experience exceptions to our culture's roles and rules.

"Stereotypes reduce uncertainty," says Best. "Learning them is a normal process, just like learning that things that look like stoves may burn you. But sometimes the content becomes negative, you expect all people to be like the stereotype, and you run into trouble."

Most of us would agree that negative stereotypes can be hurtful. But some researchers fear more sinister effects. They have shifted the focus from how stereotypes affect their targets, to how they affect all of us, finding that tiny cues—a face, a few words, an advertisement—can dramatically alter what we perceive, how we feel, our capabilities and even how we act. It's now becoming clear that stereotypes that we don't know we possess, or even those we consciously reject, can turn on us, sometimes with dramatic consequences.

It doesn't take much to unleash a lurking stereotype. Luke Birmingham, a forensic psychiatrist at the University of Southampton, showed how something as simple as a name can alter how people are judged. He asked 464 British psychiatrists to provide a diagnosis based on a one-page description of a 24-year-old who had assaulted a train conductor. Speaking at a meeting of the Royal College of Psychiatrists last year, he reported that when they were asked to assess "Matthew", more than three-quarters gave him a sympathetic hearing,

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proposing that he was suffering from schizophrenia and was in need of medical help. When renamed "Wayne", however, he was given a more sinister character by the psychiatrists. Wayne was twice as likely as Matthew to be diagnosed as a malingerer, a drug abuser, or suffering from a personality disorder.

These names distort the diagnosis, Birmingham explains, because of the stereotypes they evoke. "Wayne may be associated with lower social-economic status, which may be associated with a disrupted background, which may make him a more disruptive patient," says Birmingham. "You can't get away from the fact that we are prone, just as is anyone else, to positive or negative stereotyping."

But stereotypes don't just alter how we think of others. They can affect how we think about ourselves. Jeffrey Hausdorff of Beth Israel Deaconess Medical Center in Boston, and Becca Levy of Yale University, are intrigued by the effects of stereotypes of ageing on the aged. "Stereotypes present the elderly as close to childhood or close to death," says Levy. Like Birmingham, she found it was easy to trigger such stereotypes.

While elderly volunteers spent a few minutes concentrating on a computer-based reaction time test, Levy subliminally exposed them to age-related words. Half were shown negative words such as "senile", "forgetful" and "diseased", the others a more positive selection, such as "wise", "astute" and "accomplished". The words were flashed for just 70 milliseconds each—not long enough to be consciously registered, but long enough to trigger a stereotype. In a series of experiments starting in 1994, Levy has found that negative words can make older people walk more slowly, perform poorly on a subsequent memory test, underrate their own abilities, and even sap their will to live.

You wouldn't think a few words could evoke despair, but that's what Levy found. After exposing old people to positive or negative words, Levy asked them if they would request an expensive, but potentially life-saving, medical treatment without which they would die within a month. In a forthcoming issue of OMEGA—Journal of Death and Dying, she describes how when a positive stereotype was activated, most chose the lifesaving treatment. But after viewing discouraging words, most turned the treatment down. Levy believes the experiment reflects how stereotypes could bias crucial decisions.

Most recently, Levy and Hausdorff found that stereotypes can have a direct effect on health. For 10 minutes they exposed elderly people to stereotype-triggering words, then challenged them with a series of maths problems. Those shown negative words became stressed—their heart rates, blood pressure and skin conductance all increased and stayed high for more than 30 minutes. In contrast, those bolstered by positive cues sailed through the challenge stress-free (Journal of Gerontology: Psychological

Sciences, vol 55, p 205). "What's surprising," says Hausdorff, "is that the way older people view older people can significantly affect their physical functioning."

Since many studies have linked chronic stress to disease, Levy suspects that repeated triggering of negative stereotypes over the years may be making elderly people ill. She is now trying to develop a therapy to reduce stress and improve heart functioning in the elderly by systematically stimulating positive stereotypes.

But old folks are not uniquely susceptible to such psychological tricks. In 1996, John Bargh, a social psychologist at New York University, set out to see if negative age stereotypes might take their toll in college students too. Bargh had some students unscramble sentences scattered with negative age-related words. Those who had dealt with the negative words walked down a corridor significantly more slowly and remembered less about the experiment than students who had sorted neutral words (Journal of Personality and Social Psychology, vol 71, p 230). The images stored in our minds, Bargh says, prime us to automatically produce stereotypical behaviour.

HOSTILE REACTION

Bargh believes that the same sort of priming could aggravate racial stereotypes, suspecting that racial hostility may reverberate in self-perpetuating cycles. He and his colleagues asked participants to play a game in which they had to help a partner guess a word. Before the game, one-quarter of the participants, all of whom were white, were exposed subliminally to black faces, while the others were exposed to pictures of white faces.

Players who saw the black faces expressed more hostility towards their partner. It proved contagious as their partners responded in kind. Closing the loop, players whose unconscious hostility had angered their partner in the first place perceived that partner as inexplicably hostile. Remarkably, the players remained unaware of this entire psychodrama. From their point of view, they'd simply drawn a rotten partner. Subjects who consciously denounced racism showed the same reaction (Journal of Experimental Social Psychology, vol 33, p 541).

If faces can trigger stereotypes, so can other images. Paul Davies of the University of Waterloo in Ontario, which is known for its science and engineering program, examined the impact of stereotype-loaded advertising on young women studying maths there. They had all described themselves as being good at maths, and that this was important to them. But Davies found that watching two sexist television commercials quashed the ability of female, but not male, undergraduates to solve difficult maths problems. In a second experiment, female undergraduates shifted the subject they said they would like to specialise in away from the sciences after viewing the advertisements (New Scientist, 4 September 1999, p 6). The same ads also caused these highly motivated young women to avoid the leadership role in a two-person task.

Davies attributes these effects to a reaction called "stereotype threat", extensively studied by Claude Steele of Stanford University. Davies thinks the advertisements triggered a negative stereotype of women in all the participants. But only among female subjects did that create the personal threat of being judged as no smarter than the woman shown in one of the ads raving about her new acne cream. According to Davies, men who hit a snag on the test can rationalise that the test is just too hard. For women,

however, the same difficulty raises a paralysing cloud of self-doubt after they have been primed with the stereotype of women as emotional, illogical and helpless at maths. "It's this additional concern that undermines their pleasure and performance," says Davies.

Steele has also investigated the stereotype that African Americans are intellectually inferior. He found that black college students score lower than white students on standardised tests of school achievement, aptitude and IQ, but only if they're told the tests are measuring intelligence, or if race is raised in some other way. Steele has found that he can completely erase the black-white differences on such tests by convincing students that the particular test they will take is not related to intelligence. Conversely, he can recreate the racial gap by an intervention as minor as having students indicate their race on a questionnaire.

Sentences like "the surgeon prepared herself for the operation" provoke the same activity in the brain as sentences that don't make sense

Steele has found that stereotype threat is most devastating to the very best students. The problem, he believes, is the fear of being unfairly judged. "It's really the kids with the strongest self-confidence and skills that experience this threat the most," he says. In the real world, Steele is convinced, many talented people learn to avoid such painful threats to their self-esteem by devaluing education entirely, or retreating into fields free from the dark cloud of stereotype threat.

It's the real-world impact of gender stereotypes on women's health that concerns psychologist René Martin of the University of Iowa, Iowa City. She has found that both men and women cling to the notion that men are uniquely vulnerable to heart attacks, while women are exempt from them—even though, in industrialized nations at least, heart disease is the leading cause of death among women as well as men. This misperception resists change, she believes, partly because young women do have fewer heart problems, but also because it's linked to the stereotypical view of women as more emotional than men. Students and adults showed the same bias. And, frighteningly, so did doctors.

The women were not seen as ill, but as expressing their emotional problems through their symptoms, says Martin. A recent study of 140,000 elderly American patients also shows that women take longer than men to seek help for heart problems, and once they reach hospital they have to wait longer for diagnosis and treatment.

The one thing women were 26 per cent more likely to receive than men was a DNR—Do Not Resuscitate—order, which prohibits hospital staff from actively intervening if a patient begins to fail. "This finding surprised us," says Leighton Chan, the study's senior author, "and we found it quite concerning." Martin, however, was not surprised. She believes gender stereotypes probably influence everyone involved—the patient herself, family members, clerks, nurses and doctors.

One reason such stereotypes take such a hold is that they seem to be impressed deep

in our brains, according to Lee Osterhout, a psychologist at the University of Washington in Seattle. He used electroencephalograph recordings to see what's happening in the brains of people when stereotypes are tweaked. He found that sentences in which gender stereotypes are violated—for example, "The surgeon prepared herself for the operation"—provoke the same surge of electrical activity in the brain as sentences that don't make grammatical sense, such as, "The cat won't eating." The telltale signal is a strong positive brainwave called the P600, which is often associated with surprise.

The brains of both men and women showed this stereotypical surprise, even if they consciously found the sentence completely acceptable (Memory & Cognition, vol 25, p 273). "It seems that our subjects' brains were telling us one thing, while their overt responses were telling us something quite different," says Osterhout.

Two recent studies peer even more deeply into the brain. Allen Hart, a social psychologist at Amherst College in Massachusetts, and his colleagues used magnetic resonance imaging to trace differing reactions to black and white faces to a region deep in the brain called the amygdala (NeuroReport, vol 11, p 2351). The amygdala is thought to act like a spotlight, focusing attention on fearful or other emotionally charged events.

Elizabeth Phelps and Mahzarin Banaji also found greater amygdala activity in white subjects who showed the strongest responses in "mind-measures" of their unconscious feelings about black people—either startle responses after viewing different faces or "implicit association tests" that look at how readily people associate race-related words or images with positive or negative evaluations (The Journal of Cognitive Neuroscience, vol 12, p 728).

The studies highlight the dissociation that Osterhout identified between our conscious beliefs and unconscious responses. "For a long time [social psychologists] have been saying that racial evaluations have a much more subtle way of influencing our behavior," says Phelps. "To show this dissociation in the brain is powerful support for that view."

A few researchers are exploring ways to counter such automatic, knee-jerk thinking, for example by making people aware of stereotypes they've absorbed, and coaching them to make positive responses to images that trigger them. Bargh, for one, is not optimistic. "Often the best of intentions falter," he says.

But Steele believes that progress can be made by weeding out negative stereotypes before they take root in young people's minds. For example, he advises schools to push disadvantaged students rather than demean them with low expectations. "We've found we can break down stereotypes and stereotype threat," says Steele. "Reduce the pressure of being judged, and you can see dramatic turnarounds in outcomes. And that gives hope."

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