

# Gender-science stereotypes persist across the world

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The Netherlands had the strongest stereotypes associating science with men more than women, according to a new Northwestern University study that included data from nearly 350,000 people in 66 nations.

These [stereotypes](#) are prevalent across the world—even in nations such as Argentina and Bulgaria where women are roughly half of [science majors](#) in colleges and universities and employed researchers, according to the study, the largest ever of its kind.

"These stereotypes are important because they can contribute to outcomes such as biased hiring decisions according to prior studies," said David I. Miller, lead author of the study and a doctoral student in psychology at Northwestern's Weinberg College of Arts and Sciences.

Through a website called Project Implicit, participants rated how much they associated [science](#) with males or females. Another measure assessed how quickly they associated [science](#) words such as "math" and "physics" with male words such as "boy" and "man." Neither measure asked whether participants thought men or women were more competent in science.

Ironically, stereotypes were often strong in nations such as Denmark, the Netherlands and Norway that otherwise have strived for gender equity (in terms of lowering maternal mortality and increasing women's parliamentary representation and [labor force participation](#)).

"In fact, Scandinavian nations generally had stronger stereotypes than the U.S.," Miller added. His website features an interactive table providing comprehensive rankings for all 66 nations.

"Although surprising at first, the results made sense when we looked at who pursued science in these nations," Miller said.

"For instance, Dutch men outnumbered Dutch women by nearly four to one among both [science majors](#) and employed researchers," he noted.

"The strong stereotypes in the Netherlands, therefore, reflect the reality of male dominance in science there."

The good news is that gender-science stereotypes were weaker in nations with more female science majors and researchers.

Related research suggests that experiences in college may be one key to changing gender-science biases, according to Alice H. Eagly, coauthor of the study and the James Padilla Chair of Arts and Sciences and professor psychology at Northwestern's Weinberg College.

"Stereotypes should erode more quickly for individuals who see many female science majors in their classes, for instance," said Eagly, also a professor of management and organization at the Kellogg School of Management and faculty fellow at Northwestern's Institute for Policy Research.

Eagly said the study's results suggest optimism that gender-science stereotypes will weaken as people see more women in science, though according to prior studies, this process will be slow.

"Simply taking a college mathematics course from female instructors is generally not sufficient to change stereotypes," she said. "Changing these persistent beliefs likely requires seeing female scientists across diverse

sources such as news articles, television shows and textbooks."

"When these stereotypes remain, they can at times cause negative outcomes such as hiring biases that favor men in some contexts," Miller said.

Offering some optimism on the complex subject, however, Miller noted that these stereotypes might not always lead to biased evaluations of female scientists. A new experiment reported in the journal *Proceedings of the National Academy of Sciences*, for instance, found that faculty prefer to hire women over men among highly qualified tenure-track applicants, he pointed out.

Science instruction might help reduce gender-science [stereotypes](#) by engaging students in analyzing varied examples of female scientists, according to Marcia C. Linn, co-author of the study and professor of cognition and development at the Graduate School of Education at University of California, Berkeley.

"Students receive conflicting messages about who can succeed in science," Linn noted. Students often struggle to coherently integrate these messages with their gender and academic identities, she said, citing a recent study in *Frontiers in Psychology* demonstrating that point.

"Educators should present examples beyond Marie Curie to help shape students' beliefs about who pursues science," she said. "Students reconsider who pursues science when they can compare examples of female scientists and reflect on their beliefs."

**More information:** "Women's Representation in Science Predicts National Gender-Science Stereotypes: Evidence From 66 Nations" has been published online and will be published this fall in an upcoming edition of the *Journal of Educational Psychology*.

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Provided by Northwestern University

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