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A sex difference in competitiveness even among the fastest runners

Sex differences in some behaviors are well established, but it's unclear whether differences still occur within highly selective sub-populations, such as expert financial decision makers or elite athletes. Researchers assessed the competitiveness of over 1,100 collegiate distance runners and tested whether the already-known sex difference in competitiveness narrowed when considering the fastest runners. They found the difference between genders was just as large among the fastest as it was among the slowest runners.

Whether or not sex differences disappear among selective sub-populations has important implications. On one hand, if differences decrease it would indicate that when women and men are provided with equal opportunities and training, then sex differences in behavior can be erased. On the other hand, if differences persist among selective sub-populations then it could support the case for gender diversity in the workplace, since men and women might have complementary strengths and weaknesses.

The researchers studied distance running because it is popular with both men and women, and the financial incentives, such as scholarships and prize money, do not favor men. They assessed competitiveness with surveys addressing each runner's motivation for participating, their training volume, and their desire to compete at an elite level after college. Because men and women compete separately and because men have physiological advantages, the researchers compared runners based on their ability compared to others of their sex. That is, the most selective group was defined as those runners who were in the top 5000 m performance quartile for their sex. The researchers also compared runners based on their school's NCAA athletic division, because generally Division I runners are fastest, Division II runners are intermediate, and Division III runners are slowest. The sex difference in competitiveness was just as large among the Division I runners as it was among Division II and Division III runners.

The researchers also considered possible explanations for the sex difference in competitiveness. They did not find evidence that female runners were more likely to be injured or to face greater childcare responsibilities. However, women reported greater commitment than men to their academic studies, suggesting a sex difference in priorities.

The researchers believe that their results are consistent with data from outside of distance running. "Of course, we need to be careful not to assume that our running results will generalize to all sports or all domains outside of sports," noted lead researcher, Robert Deaner of Grand Valley State University. "Nevertheless, our findings do echo those from other studies, which show that even when men and women hold the same selective jobs, men are more likely to prioritize competing for recognition and status, while women have more communal orientations."

Although the new study is based on a very large data set and found a reliable sex difference in competitiveness, the researchers acknowledged there is much individual variability. "By social science

standards, the difference we found—men and women differing by about half a standard deviation on competitiveness measures—is moderate to large. But this kind of a difference still means that many of the female runners are more competitive than many of the male runners," noted Deaner.

The research was published today in the peer-reviewed open access journal PeerJ (https://peerj.com). The authors are strong advocates for transparent science and open-access publishing and in addition to the full release of the dataset and analysis, the complete peer review history is also being made available -a nascent practice that is gaining popularity.

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Abstract (from the article):

Sex differences in some preferences and motivations are well established, but it is unclear whether they persist in selective sub-populations, such as expert financial decision makers, top scientists, or elite athletes. We addressed this issue by studying competitiveness in 1,147 varsity intercollegiate distance runners. As expected, across all runners, men reported greater competitiveness with two previously validated instruments, greater competitiveness on a new elite competitiveness scale, and greater training volume, a known correlate of competitiveness. Among faster runners, the sex difference decreased for one measure of competitiveness but did not decrease for the two other competitiveness measures or either measure of training volume. Across NCAA athletic divisions (DI, DII, DIII), the sex difference did not decrease for any competitiveness or training measure. Further analyses showed that these sex differences could not be attributed to women suffering more injuries or facing greater childcare responsibilities. However, women did report greater commitment than men to their academic studies, suggesting a sex difference in priorities. Therefore, policies aiming to provide men and women with equal opportunities to flourish should acknowledge that sex differences in some kinds of preferences and motivation may persist even in selective sub-populations.