

Women leave math-heavy fields when they have kids

Cornell University

Women with advanced degrees in math-intensive academic fields drop out of fast-track research careers primarily because they want children -- not because their performance is devalued or they are shortchanged during interviewing and hiring, report two Cornell professors.

Fewer women choosing such fields in the first place means children take an especially heavy toll on math-intensive departments, where women full professors number only between 4 percent and 13 percent, report Cornell human development professors Wendy Williams and Stephen Ceci in the journal *American Scientist* (100:2).

Female postdocs are twice as likely as men to choose to leave the academic pipeline once they have children. "For those women in math-based fields, who had the ability and commitment to persist through doctoral and postdoctoral training, this loss to the academy is especially salient," says Williams. "Moreover, we found that childless women fare as well professionally as men with or without children, while women who remain in the academy after having children fare worse."

In other words, the researchers conclude: "Motherhood -- and the policies that make it incompatible with a tenure-track research career -- take a toll on women that is detrimental to their professional lives. Even just the plan to have children in the future is associated with women exiting the research fast-track at a rate twice that of men.

"It is time for universities to move past thinking about underrepresentation of women in science solely as a consequence of biased hiring and evaluation, and instead think about it as resulting from outdated policies created at a time when men with stay-at-home wives ruled the academy," said Williams, who founded the Cornell Institute for Women in Science, a research and outreach center that studies and promotes the careers of women scientists.

The academic system presents women with a harsh reality: They face the most challenging period of their careers during their peak childbearing years, the authors say. Women must deal with pregnancy, childbirth and child care while simultaneously accumulating an impressive portfolio of work to earn tenure. "Women are making active decisions to leave academia in a world that juxtaposes biologically determined fertility opportunity with the period of critical, early career growth," Williams added. "Due to the inescapable reality of biology, this is a choice men are not required to make."

For the study, Williams and Ceci analyzed data related to the academic careers of

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women and men with and without children in academic fields, including math-heavy ones. They found that before becoming mothers, women have careers equivalent to or better than men's. "They are paid and promoted the same as men, and are more likely to be interviewed and hired in the first place," Williams said.

The study has implications for university policymakers, the authors assert. Universities could pump up the number of women in fields where they are in short supply by updating policies to accommodate childrearing. Strategies could include, for example, offering women with children part-time tenure-track positions that segue to full time once children are older. Colleges could also stop the tenure "clock" for parents who are raising children, reduce teaching loads for parents of newborns and offer emergency childcare. The authors also note the need for more research into gender-specific aspects of women's professorial lives.

"In a time of limited resources, universities should direct attention toward solving the critical current problem: policies and procedures that make academic lives incompatible with motherhood," Williams said.

The study builds on previous research by Williams and Ceci published in 2011 in Proceedings of the National Academy of Sciences showing that women in math-intensive fields did not face discrimination in hiring, publishing or funding.

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