

Commentary: women + science Ph.D.s = disappearing act?*By Jessica Belser*

Much publicity has been directed towards comments made by Dr. Lawrence Summers, president of Harvard University, in mid-January of this year [1, 2]. During a speech at the National Bureau of Economic Research conference focusing on the status of women and minorities in science and engineering, Summers offered a hypothesis that the deficit of women holding advanced positions in the sciences is due to social bias, women unwilling to make the same commitment to a high-powered job than men, or an innate discrepancy in scientific aptitude between men and women. While these comments and the inevitable debate that followed have pushed the issue of underrepresentation of women in the sciences to greater awareness, this problem is old news to many scientists at all stages of professional advancement.

Reading about the deprecation of women holding advanced positions in academia in a journal or newspaper article is one thing, but seeing this trend, observing it on a daily basis, is something else entirely. As a graduate student in the Immunology and Molecular Pathogenesis Ph.D. program at Emory University, I am fortunate to be in group of students that is split exactly down the middle in gender lines: 28 women and 27 men, in various stages of (we hope) matriculation. Yet out of the 42 professors formally associated with my program, only 7 are women, or 16% of tenured or tenure-track faculty. Yes, more women are earning doctorates in the sciences now compared to 30 years ago (an increase from 14% to 37% [3]), and yes, these numbers are improved compared to the lack of tenured women in professions such as mathematics, engineering, or physics. But it makes me wonder: where have all the women with Ph.D.s gone? How much of this underrepresentation of women in academia is due to disproportionate hiring practices, and how much does this reflect women choosing not to commit to this career path, conflicted between the demands of high professional productivity needed to advance to tenure and the equal demands and time commitment of family?

While attending a scientific conference in Washington D.C. last April, I attended a roundtable discussion sponsored by the American Association of Immunologists (AAI) Committee on the Status of Women. Many topics were offered as starting points for discussion, highlighting the need for a support system, identifying ways to enhance career opportunities, and ensuring equal treatment in all areas of a scientific profession. I participated in a dialogue concerning the transition from being a graduate student to becoming a post-doctoral fellow, and the topic that emerged as what most individuals at the table were concerned about, and were the most conflicted about, was when the heck we were supposed to start a family without sacrificing the professional advancement we had worked so hard to maintain. A competitive post-doctoral position in a well-known laboratory following graduation, with a record of high productivity and an established publication record, are the best tools to secure and maintain a tenure-track

university position. This means working at a very competitive, time-encompassing level during your late twenties and early thirties - the same years many women are likely to want to devote more time to or start a family. The ramifications of waiting until after tenure has been established can result, for some women, in your biological clock passing you by. As a result, a not insignificant number of women with advanced degrees and success in their respective fields are choosing to "opt-out" altogether of the high-stakes professional world to focus on raising family, declaring that they are rejecting the professional world, rather than the other way around [4]. However, in my experience, most women are looking for professional achievement and personal fulfillment and are willing to compromise to a fair extent to have them both - it just works out that compromising on the professional side can lead to undue consequences on a career.

Attention to this problem has led to a growing number of alternatives or assistance to women in this position. Many universities have adjusted their tenure processes to allow for part-time tenure positions or to take time off the tenure clock for spending time with family or pursuing other commitments. Some academic departments, like the Chemistry and Chemical Biology department at Rutgers University (full disclosure: my alma mater) have made it public that they are committed in hiring women and minority professors, and as a result boast over 25% tenure-track women on faculty, much higher than the national average. In an exciting move, the National Institute of Allergy and Infectious Disease (NIAID) has established a program whereby primary investigators can receive funding outside their grant to employ a technician to assist a post-doctoral fellow in their lab who has primary caregiving responsibilities to a young child or sick family member. Possibly the most revolutionary part of this funding opportunity is that it is not targeted exclusively for women; either sex can apply if they meet the requirements. However, while these and other modifications to a still biased process are encouraging, many women are not taking advantage of these options because of a perceived stigma of having this alteration to the established track potentially derail their careers. It remains to be seen if this exploratory NIAID funding program (which is limited to primary investigators who hold NIAID-sponsored grants - a small percentage of laboratories in the field) will expand among other departments and academic fields.

Do women and men truly have "innate differences" when it comes to scientific aptitude? A lack of unbiased research in the area can provide no compelling answer. Social biases against hiring women for advanced positions, on the other hand, are still alive and well in the 21st century. The more equitable numbers of women graduating with doctorates in the field, along with cutting-edge research that rivals anything performed by their male counterparts, demonstrates that there are many, many women qualified to hold the upper-tier positions in academia and beyond where they are currently missing. It remains to be seen whether directed efforts to rebalance hiring practices, like the conciliatory \$25 million Summers has now pledged to "avoid budget constraints on the

appointment of outstanding scholars from underrepresented groups, including women and minorities [5]" (side note: since when are women and minorities a 'budget constraint?') will have an appreciable effect, or if social practice will become more forgiving in allowing women the flexibility they might need to prioritize choices like family or lifestyle without professional ramification. As for me, I'm quite happy working for my second-straight female principle investigator. I hope to make it up there someday, but in the meantime I'm supporting the ones who have found a way.

Sources

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4. Belkin, L. 2003. "The Opt-Out Revolution." The New York Times Magazine, 10/26/03.
6. Summers, LH. "Letter from President Summers on women and science." <http://www.president.harvard.edu/speeches/2005/womensci.html> accessed 2/16/05.

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