



Molecular biologist Rana Dajani at a workshop on educating refugees in 2015.

## COMMUNITY

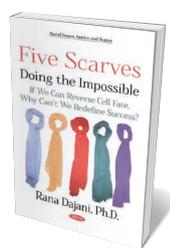
# The real wins for women in science

Malak Abedalthagafi extols a memoir from a Jordanian biologist and trailblazer in women's rights.

Can a breakthrough in stem-cell research revolutionize feminism? Can a scientist apply the scientific method to her own life to find solutions to social problems? In *Five Scarves*, Jordanian molecular biologist Rana Dajani reveals with passion and cogency how she has explored those possibilities. She speaks to humanity's capacity to overcome challenges — not least, improving the treatment of women and children.

The book is part call to action, part research journal and part autobiography: the five scarves are the different 'hats' Dajani wears as scientist, mother, teacher, social entrepreneur and trailblazing feminist. She has long written and spoken about the obstacles facing women in academia, and how they vary by discipline and culture. As she notes, across the Middle East, women constitute just under 40% of researchers in science, technology, engineering and medicine; in the United States, a mere 24%. Moreover, as a champion of women's central role in families, she is determined to change mindsets so that — as she asserts — women worldwide do not have to choose between career and family. Having worked in both the United States and Saudi Arabia, I find that resonates with me.

Describing a 1970s childhood and adolescence in Jordan and the United States,



**Five Scarves: Doing the Impossible — If We Can Reverse Cell Fate, Why Can't We Redefine Success?**

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in communities most affected by power struggles beyond their control. She stressed the importance of education, for instance, so that vulnerable people, especially children, are no longer mistreated or manipulated. And her extensive reading offered glimpses of far-flung travel and other opportunities.

Marrying in the early 1990s, she began a family while still in education; motherhood brought a determination to wear multiple scarves with grace. Dajani records that for her, pregnancy and birth were a revelation of

Dajani writes that she learnt from strong women how to be responsible for community well-being. Her mother taught her that in Islam, a person is judged on intention, and that every effort counts, however seemingly inconsequential. With parents from Syria and the Palestinian territories, Dajani became passionately outspoken on the rights of women and families, particularly

the profundity of human biology. She and her young family moved to Iowa City in 2000 so that she could pursue her PhD at the University of Iowa. Her husband gave up a career for the move; Dajani is optimistic that more men are supporting their wives in this way. Removing sexist assumptions and roles from family life is part of her redefinition of success.

She criticizes some would-be support in the United States. A number of tech giants offer to freeze employees' eggs to let them have children later. Yet the technology is not foolproof: a study by the UK Human Fertilisation and Embryology Authority found that in 2016, only 19% of implantation cycles using frozen eggs succeeded. Paid parental leave and childcare would be more just, pragmatic and economical, she argues. The United States is the only industrialized nation with no mandate for paid maternity leave.

In 2005, Dajani and her family returned to Jordan. At the Hashemite University in Amman, she researched the genetics of the country's Circassian and Chechen ethnic groups and began to collaborate with scientists worldwide, for instance on the study of ancient human lineages. In 2008, inspired by stem-cell breakthroughs, Dajani formed a committee on the political and ethical aspects of the research. That led to Jordan's Stem Cell Research and Therapy Law, which encouraged the work but regulated and decommercialized it, setting a precedent in the region.

From 2015, Dajani was involved in studies that helped participants to be part of their own success. One, which she spearheaded in Jordan, was initiated by medical anthropologist Catherine Panter-Brick to gauge the impact of a programme to reduce trauma in young Syrian refugees. One of Dajani's contributions was to explain the link between stress and levels of the hormone cortisol in hair; crucially, she and her team also ensured that the young people had agency, collecting their own data and helping to find new approaches.

Treating social challenges such as poverty and illiteracy as a science experiment, Dajani initiated the We Love Reading project in Jordan, hypothesizing that getting children excited about books would stir social change beyond their communities. Within 12 years, the programme had distributed 250,000 books and established 1,500 neighbourhood libraries. There is much more in this memoir, from Dajani's work setting up mentoring networks for female scientists in the Middle East to her bold, innovative approach to teaching.

In a sense, she asks: if molecules can communicate effectively, why can't we? ■

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