

A portrait of Professor Tania Di Renna, a woman with long, wavy brown hair, looking directly at the camera. The image is overlaid with a semi-transparent red filter. The text "UNHEARD ♀ UNDERDIAGNOSED" is centered at the top of the image.

# UNHEARD ♀ UNDERDIAGNOSED

Professor **Tania Di Renna**

***Women are more likely to live with chronic pain — and less likely to be believed. Inside the science, bias and push for change.***

By Rebecca Cuneo Keenan

As a teenager, **Mojola Omole** (MD '07) regularly missed school because of unrelenting discomfort associated with her periods. She thought pain was simply a normal part of being a woman.

“My family would say, ‘Oh, Mojola always has stomach pains,’ so I just thought that was my lot in life,” she recalls.

It wasn’t until adulthood that Omole, now a health equity advocate and breast oncologist and general surgeon with Scarborough Health Network, was finally diagnosed with endometriosis, putting a name to the years of chronic pain she had endured.

Omole’s experience is far from unique. Women are more likely than men to live with chronic pain, suffer in silence and receive inadequate treatment.

## Why women feel more pain

Estrogen increases pain sensitivity, while testosterone protects against it. This makes women more susceptible to pain, says **Tania Di Renna** (PGME '03), an anesthesiologist at Women’s College Hospital (WCH) and the medical director of the Toronto Academic Pain Medicine Institute.

Hormones can also influence how women metabolize pain medications, which can make them less effective or cause side effects. “Estrogen slows down stomach emptying, increases the body-to-fat ratio and decreases drug-binding proteins,” says Di Renna, who is also a professor in the Department of Anesthesiology and Pain Medicine at the Temerty Faculty of Medicine.

To make matters worse, many chronic pain conditions disproportionately affect women, including gynaecologic conditions such as vulvodynia, as well as endometriosis, migraine and fibromyalgia and inflammatory conditions

like arthritis. And only women feel the pain related to pregnancy and giving birth.

Statistics show that racialized women are more likely to experience additional effects of living with chronic pain. “Sickle cell, fibroids and endometriosis all disproportionately affect Black and racialized women,” Omole says.

## A history of being ignored

Medicine has long dismissed women’s symptoms. Throughout history and into the 1980s, physicians often diagnosed women’s suffering as “hysteria,” as psychological rather than physical.

Studies show that women are less likely than men to be prescribed pain medication and experience the pain-relieving effects of drugs like opioids and NSAIDs differently.

This bias is mirrored in medical research on pain, which has only recently turned its lens on women. It wasn’t until 2016 that the National Institutes of Health required grant applicants to factor sex as a biological variable in the design of basic and preclinical animal research studies.

“Women’s health is underfunded, and the health of marginalized and racialized people is even more so,” says Omole.

**Tatyana Mollayeva** (PhD '15 RSI), is a senior scientist at the KITE Research Institute at University Health Network. Her research focuses on the prevention and management of neurological diseases and injuries, and the role of sex, gender and intersecting vulnerabilities in shaping outcomes.

Mollayeva contends that the lack of diversity is an inherent limitation of medical research. She argues that the

drive to reduce variables in studies results in homogeneous samples that can limit the usefulness of results.

“We need to pay attention to who is included in the study if we want the results to apply more broadly and improve the quality of care,” she says.

Despite the obstacles, Mollayeva is encouraged by new frameworks, such as PROGRESS-Plus, that apply an equity lens to research and account for social determinants of health such as gender, race, ethnicity and occupation.

“I think we are living in a very good era,” she says. “We have the technology that, with proper attention and ethical use, can help us understand non-linear relationships and find results that are meaningful to people.”

**Mindsets are shifting**

One area in which science is catching up is migraine, a brain disease that affects women at a rate three to four times more than men

“As recently as the 1970s and 1980s, one of the main treatments for migraine was a medication called Fiorinal that was, in large part, a sedative,” says **Christine Lay** (MD ’92), a neurology professor at Temerty Medicine’s Department of Medicine and the director of the Centre for Headache, based at WCH.

The assumption was that migraine was a disorder of women who were simply stressed or overwhelmed, Lay says. That mindset has shifted. “Scientific advances have shown migraine to be a complex brain disease that can cause a moderately severe headache along with nausea, cognitive fog, light and sound sensitivity, dizziness and more.”

New targeted migraine therapies have replaced older, poorly tolerated treatments, such as antidepressants and blood pressure medication, that offered limited relief, transforming care for women living with migraine.

Pain during pregnancy and the postpartum period is also often misunderstood or minimized.

“It’s often dismissed as normal pregnancy discomfort or left untreated because of concerns related to medication safety in pregnancy,” says **Rebecca Titman** (PGME ’21), a physiatrist with Sinai Health’s Pain in Pregnancy Program and a professor of physical medicine

and rehabilitation at Temerty Medicine’s Department of Medicine.

“Medication is only a small part of what we do to support people with pain in pregnancy,” says Titman. “Validating a patient’s pain is key, coupled with management through movement, gentle exercise, acupuncture, transcutaneous electrical nerve stimulation or mindfulness practices.”

Titman is encouraged to see the clinical community taking women’s pain seriously. As an example, she points to the growing number of pelvic health physiotherapists, which rose by 46 per cent in Ontario between 2020 and 2022.

**Building a better system**

Di Renna is optimistic about recent investments in women’s health. These include a grant of almost \$600,000 from the Canadian Institutes of Health Research (CIHR) awarded to Di Renna and WCH collaborators to support better screening for endometriosis. And in 2023, CIHR and Women and Gender Equality Canada supported the creation of the Pan-Canadian Women’s Health Coalition with an \$8.3 million investment. The initiative established 10 virtual hubs across the country to improve the visibility and impact of women’s health research and practice.

At the same time, Di Renna and her colleagues are watching the United States, where politics are eroding scientific freedom and reproductive health research.

Omole takes inspiration from the medical learners she works with, who understand the importance of talking about misogyny, racism and marginalization.

“Systemic change is what we need,” Omole says. “But sometimes individual change is where we start.” •