

▶ effect, and larger than is seen with alternatives such as duloxetine, an antidepressant used to help reduce pain in people with cancer⁴. Meanwhile, the proportion of participants whose pain improved by at least two points (which Hershman describes as a “clinically meaningful” change) almost doubled, from around 30% in both control groups to 58% in the true-acupuncture group. Unlike with duloxetine, the benefits persisted after the acupuncture course had finished. Hershman concludes that acupuncture is a “reasonable alternative” to prescription medications such as duloxetine or opiates.

Rollin Gallagher, director of pain-policy research at the University of Pennsylvania in Philadelphia, and editor-in-chief of the journal *Pain Medicine*, welcomes the trial. “These are careful methodologists,” he says. “There is moderate to good evidence in clinical trials for acupuncture now, and this is another contribution.”

PLACEBO EFFECT?

But sceptics have criticized the research. Regardless of how rigorous the trial was, the acupuncturists knew whether they were delivering real or sham treatment, says Edzard Ernst, emeritus professor of complementary medicine at the University of Exeter, UK. This could have influenced how the recipients responded, he says. “I fear that this is yet another trial suggesting that acupuncture is a ‘theatrical placebo.’”

But Jun Mao, chief of integrative medicine at the Memorial Sloan Kettering Cancer Centre in New York City, says that acupuncture trials such as Hershman’s are better blinded than studies of approaches such as palliative care, cognitive behavioural therapy or exercise, in which participants inevitably know what treatment they are receiving. Sceptics “accept trial results from those fields readily, but they make a special case against acupuncture”, he says. “It’s not fair to use that single argument to shut down the whole field.”

For Hershman, the sceptics’ concerns risk losing sight of what’s best for patients. “To say that something that is pharmacologic is better, when it causes horrible toxicities, is also problematic,” she says. With acupuncture, “we tried to do the most rigorous study we could. At the end of the day, if it keeps somebody on their medication or improves the quality of their life, then it’s worth it.” ■

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SHANNON STAPLETON/REUTERS

Graduate students in New York City rally against the proposed tax bill in late November.

POLICY

Proposed US student tax hike spurs anger

Worries over the cost of a university education spark protests across the country.

BY HELEN SHEN

Jessica Frick was the first in her family to graduate from university, and she hopes to be the first to obtain her PhD. But a looming decision on US tax legislation could drastically increase taxes on university students such as Frick, who worries that she might not be able to afford to finish her chemistry doctorate at Princeton University in New Jersey.

Many US universities waive tuition fees for students who conduct research or teach. But a provision in a tax bill passed by the US House of Representatives in mid-November would add that tuition to students’ taxable income. The vote prompted demonstrations at more than 60 US universities on 29 November. Eight graduate students were arrested on 5 December while protesting outside the Capitol Hill office of House speaker Paul Ryan.

Tax legislation passed by the US Senate on 2 December does not include the provision. But students, universities and advocacy groups are hoping to beat back the provision in the House bill as lawmakers work to reconcile the two and prepare to vote on the revised legislation.

Institutions including Johns Hopkins University in Baltimore, Maryland, Tufts University in Medford, Massachusetts, the University of California system and Ohio State University

in Columbus have sent letters to, or met with, members of Congress to keep tuition waivers tax-free. The Association of American Universities (AAU) in Washington DC, which represents 60 US universities, has also pushed back in meetings and letters. “This is not in America’s national interest,” according to a missive that the AAU co-signed with 45 other higher-education associations.

PAYING FOR IT

Many worry about what will happen if the tuition tax survives. “I would have to get a second job,” says Frick, who spends up to 60 hours a week in the lab. “It would be impossible.” Her roughly US\$30,000 annual stipend barely covers her living expenses and medical costs to treat a serious jaw condition.

Janice and Sean Hudson — geography PhD students at the University of Delaware in Newark — nearly exhaust their stipends on living expenses and supporting their three-year-old son. If the tuition tax passes, they may have to take out a loan; in the worst-case scenario, one of them might have to drop out.

The systemic effects of the tax would ripple through science, technology, engineering and mathematics (STEM) in the United States; STEM students receive 60% of US graduate tuition waivers, according to the American

Council on Education in Washington DC. Current students might leave, and prospective ones could decide against applying to US graduate schools. “The US could wind up with a shrinking pool of PhD students, leaving research labs without qualified graduate students to help PIs conduct research,” says Jennifer Zeitzer, director of legislative relations at the Federation of American Societies for Experimental Biology in Bethesda, Maryland.

The tuition tax could also stifle socioeconomic diversity in science. “Those who can afford to pay more taxes can go to graduate school. Those who can’t, won’t,” says Andrew Campbell, dean of the graduate school at Brown University in Providence, Rhode Island.

Income-tax calculations depend on several

factors, such as marital and family status, as well as tuition costs, which differ by university. But some students have taken a stab at working through the numbers.

For students earning around \$37,000 annually at Yale University in New Haven, Connecticut, their taxable income could double, estimates Yale immunobiology PhD student Michael Parker.

At the University of California, Berkeley, physics PhD student Vetri Velan estimates that Berkeley students would pay 30–60% more in taxes; those at the Massachusetts Institute of Technology in Cambridge could pay 240% more.

Most universities have stayed quiet on how they will cope if the tuition tax becomes law.

Wary of stoking premature hope or concern, Campbell, too, would not comment on Brown University’s plans. But he did note that small, public institutions — including ones that historically educated black students — may be least able to absorb costs for students. “This tax could really threaten the existence of graduate education at minority-serving institutions,” Campbell says.

However, the Senate has shown little appetite for the tax, says Jessica Sebeok, the AAU’s associate vice-president and counsel for policy, and there are signs of renewed debate in the House. “They’ve gotten enough concerned contact from their constituents to possibly rethink it,” she says. “We are cautiously optimistic.” ■

ARGENTINA

Geoscientist faces criminal charges over glacier survey

Ricardo Villalba stands accused of shaping a study to benefit the mining industry.

BY JEFF TOLLEFSON & EMILIANO RODRÍGUEZ MEGA

A prominent geoscientist in Argentina is facing criminal charges over accusations that he manipulated a government survey of glaciers at the behest of mining interests.

On 27 November, a federal judge in Buenos Aires charged Ricardo Villalba, former director of the Argentinian Institute of Snow, Ice and Environmental Research (IANIGLA) in Mendoza, with abusing his authority and violating his duty as a civil servant. Villalba appealed against his indictment on 4 December — but if he loses, the case will go to trial. In the meantime, the court has ordered him to stay in the country, and has authorized the seizure of his assets up to 5 million pesos (US\$289,000).

The case hinges on the definition of a

glacier as viewed from space. When Villalba began the government survey in 2011, he determined that it would include glaciers of 1 hectare or larger — following international norms for satellite analyses. But environmental activists in Argentina’s San Juan province argue that he excluded some smaller glaciers to prevent tough regulation of adjacent mines operated by the Barrick Gold Corporation of Toronto, Canada. Villalba’s scientific colleagues in Argentina and abroad say the charges against him are baseless and political.

“It’s surreal and kind of ridiculous,” says Bruce Raup, a glaciologist at the US National Snow and Ice Data Center in Boulder, Colorado, who co-authored a letter of support for Villalba. Raup maintains an international glacier database that includes information from the ongoing Argentinian survey. He says that many scientists set a minimum

glacier size of 1 hectare to reduce the risk of incorrectly counting ephemeral snow and ice.

Villalba rejects the idea that he or his colleagues at IANIGLA failed to carry out their duties properly. “There is no other institution in Argentina that has done more for the knowledge, care and protection of glaciers than IANIGLA,” he says. The allegation that the glacier surveys were designed to promote mining interests “is totally wrong”, he says, and a blow to science in Argentina generally.

Other scientists have rushed to his defence. Villalba’s co-workers at the National Scientific and Technical Research Council (CONICET) in Mendoza protested on his behalf as he entered his appeal on 4 December. And scientists in other countries who have worked with Villalba are collecting signatures on a letter defending him and his glacier survey. Many of these ▶



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