

[Three of the authors respond:]

Maggie Mamen claims that using IQ ignores the possibility that marijuana may have an impact on multiple domains of cognitive functioning. Far from being ignored, this was raised in both the interpretation of the results and in the abstract of our article.¹ We emphasized that the drug's impact on particular domains of intelligence (memory and attention were highlighted) must be ascertained and may differ from a broadly based measure of intelligence represented by IQ. This is ongoing in our research at the moment.

IQ was chosen for our report of preliminary findings for many reasons. Primarily, this work was intended to contrast our findings with previous research in which no premorbid cognitive values were available. The vast majority of these studies employed IQ as a concurrent outcome variable and thus our use of IQ was a matter of permitting an "oranges to oranges" comparison with the other studies. Furthermore, although intelligence is unquestionably multifaceted, the IQ measure remains a major, widely used barometer of intellectual performance. For example, in most school boards (including the 2 boards in the Ottawa, Ont. area) it is the cornerstone of initial assessment of children and, in examining the outcome of exposure to drugs (prenatal or concurrent), IQ values are ubiquitously cited.

Regarding the use of marijuana during pregnancy, our research group has published over 100 papers on prenatal marijuana exposure and its impact on a host of outcomes. This putative relationship will, in fact, be the subject of future reports. However, (in part due to space limitations imposed by *CMAJ*) for the purposes of the published article, prenatal exposure was found not to be associated with IQ change.

Paul Yong suggests a possible similarity in marijuana use between former users and non-users. What follows is a more detailed description of these 2 groups. Of the 37 non-users, 18 had

never used marijuana and 19 had used marijuana but never at the level of at least once a week. Of the 19 non-users who had tried marijuana in the past, only 7 had used it in the past year. In contrast, all 9 of the former users had smoked at least once a week previously with an average use of 21.4 joints per week for an average of 2.2 years.

Regarding the power issue with the sample size of heavy former users, 5 former heavy users showed an average IQ difference score of 0.8, which did not differ significantly from the non-users. Definitely, this comparison suffers from lack of statistical power and was meant only as an initial foray to compare heavy former use with heavy current use.

Ian Shrier asks if there was an increase in the proportion of people below 77.5 in our sample. The lowest IQ measured in our relatively small sample was 84. The projection of our results onto standard cutpoints was an example of the potential impact on society at large.

Shrier's suggestion that heavy users with higher IQ scores initially might be affected differentially from those initially scoring lower is interesting. Although not originally addressed in our article, that analysis has now been done. The correlation between initial IQ and the IQ difference score is not significant ($r = -0.34$, $p = 0.21$). In addition, when the initial IQ is dichotomized at the median, no difference exists between the IQ difference scores ($F = 0.21$, $p = 0.65$). When former users were examined in the same fashion, the results were the same, and no effect on difference scores was related to initial IQ.

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Reference

1. Fried P, Watkinson B, James D, Gray R. Current and former marijuana use: preliminary findings of a longitudinal study of effects on IQ in young adults. *CMAJ* 2002;166(7):887-91.

Canadian medical students voice their concerns

I read with great interest the article by Irfan Dhalla and colleagues on the demographics of Canadian medical students.¹ However, as a student from the province of Quebec, I was disappointed that data from the Quebec universities were not included.

As reasons for excluding Quebec students, the authors list a poor response rate, incomplete email databases and a "large number of premedical students." To correct these problems, the survey could have been better publicized and a more thorough search for emails should have been conducted. In addition, the authors' concern about premedical students is unfounded; they could have easily eliminated those responses from the final analysis if they wished to do so.

To make pan-Canadian inferences about Canadian medical students without including a quarter of Canadian medical faculties is a grave error.

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Reference

1. Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Characteristics of first-year students in Canadian medical schools. *CMAJ* 2002;166(8):1029-35.

Jeff Kwong and colleagues article on the effects of rising tuition fees¹ was insightful; however, I believe the authors missed an opportunity to suggest mechanisms to help ease the financial burden on students. Provincial governments must recognize that professional degrees are now more expensive than undergraduate degrees, and therefore they must make greater amounts of money available to professional students. Furthermore, provincial governments must remove archaic rules that prevent many students from receiving the money they need. For example, students from Ontario who are less than 5 years out of high school are not eligible

for a full student loan. I received only \$3600 in student loan money from the Ontario government because they claim that I am still “dependent” on my parents. With tuition approaching \$9000, I cannot live off student loan money. This restriction clearly discriminates against medical students who enter their studies immediately after their undergraduate degree. Medical students and former medical students must come together to suggest economically sensible policies that will allow medical students to survive the financial crisis referred to as medical school.

Sarah Giles

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Reference

1. Kwong JC, Dhalla IA, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Effects of rising tuition fees on medical school class composition and financial outlook. *CMAJ* 2002;166(8):1023-8.

For too long the issue of medical school tuition has been raised once each year, at which time students protest, administrators respond that they can do nothing and increases are railroaded through compliant university governments. Your recent articles on tuition^{1,2} reached conclusions similar to our in-house, student-conducted research. The latter showed that the percentage of medical students at the University of Western Ontario from families with incomes of less than \$60 000 had declined from 25% of the total in 1998 to 14% in 2000 (unpublished data).

In 2001, during a contentious debate about raising Western’s tuition fees to a near Canada-wide high of \$14 000 a year, studies were quoted by both sides. We hope the findings published in *CMAJ* will lay to rest the notion that endless increases in tuition fees can be executed without a corresponding decline in accessibility¹ and student diversity.²

At Western, a commitment that no student will be denied access to a medical education because of financial sta-

tus, either initially or during the program, rings hollow in the face of these recent studies. For one thing, student aid such as the Ontario Student Assistance Plan is not indexed to inflation;³ the portion allocated for tuition, \$4500, has not increased in more than a decade. For another, remedies aimed at residents and new doctors, such as incentives to practise in rural areas, will never solve the problems of accessibility and student diversity. To attract students from underrepresented groups and classes, tuition fees must be cut in order to reduce the “sticker shock.”

In this era of doctor shortages, creating financial impediments for potential students will ensure that ongoing problems of diversity and accessibility get worse.

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References

1. Kwong JC, Dhalla IA, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Effects of rising tuition fees on medical school class composition and financial outlook. *CMAJ* 2002;166(8):1023-8.
2. Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Characteristics of first-year students in Canadian medical schools. *CMAJ* 2002;166(8):1029-35.
3. Statistics Canada. Consumer Price Index historical summary. Available: www.statcan.ca/english/Pgdb/Economy/Economic/econ46.htm (accessed 2002 April 28).

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Panayiotis Glavas’ letter highlights a weakness we discussed in both of our articles.^{1,2} We too were disappointed in our inability to include Quebec medical schools. We relied on Canadian Federation of Medical Students (CFMS) representatives to publicize the study at each site; because the 3 francophone schools are not CFMS members, we had little control of how the survey was promoted in Quebec. Gathering email addresses for all Que-

bec students proved to be an unachievable goal. In fact, we were told by the Sherbrooke representative of the Fédération des associations étudiantes en médecine du Québec (FAEMQ) that many students still do not use email. Glavas also comments that we could have “easily eliminated [premedical student] responses from the final analysis if [we] wished to do so.” Without resurveying the Quebec students, separating premedical and medical students would have been impossible.

We agree that our results are applicable only outside Quebec. There are several reasons (e.g., lower tuition fees, different admissions requirements) why Quebec medical students may be different from those elsewhere in Canada. In the end, we had no choice but to reluctantly exclude the Quebec data from our main analyses. However, we have made the data available to the FAEMQ and are willing to share the data more widely if others are interested.

The 2 letters by Sarah Giles and Clare Bastedo and colleagues eloquently describe the personal financial hardships faced by many medical students. Both letters question the adequacy of existing financial support programs. We agree that government loan maximums have not kept pace with tuition increases and hope that the findings of our study lead to reviews of existing programs by which medical students receive support.

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1. Kwong JC, Dhalla IA, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Effects of rising tuition fees on medical school class composition and fi-