

Effects of marijuana on young adults

I was interested to read the article by Peter Fried and colleagues,¹ particularly since funding for such long-term, prospective research is increasingly hard to find. The results of this study over the years have been interesting and important. However, I am concerned on 2 counts.

First, it is universally accepted that intelligence is multifaceted. Current research proposes as many as 9 different "intelligences," including kinesthetic, interpersonal, emotional and motivational, as well as the more traditionally understood verbal and spatial functions. To use IQ difference scores as a dependent variable to measure the effects of anything on the complexity of human cognitive functioning is at best woefully simplistic. At worst, it perpetuates the dangerous and misguided myth that human intelligence can be encapsulated in 1 score — a belief that is abused and misused by many professionals and lay people alike. This "single score" notion not only misrepresents the whole field of modern psychometrics in the area of intellectual assessment but also ignores how marijuana and other drugs may affect some aspects of cognitive functioning but not others. The investigation of any such differential effects would be more challenging, but also far more useful and enlightening.

Second, assuming no error occurred on the table outlining the characteristics of marijuana user groups, the authors chose not to discuss a highly significant result. In the current heavy-user group, prenatal exposure to marijuana was very significantly higher than in all other groups (11.6 joints per week v. 1.4, 1.4 and 1.5 in the non-user, light user and former-user groups, respectively; $p < 0.001$). This suggests that individuals who were exposed to marijuana in utero are more than 10 times more likely to become heavy users in late adolescence and early adulthood. Surely this is a major

finding that should be highlighted and addressed?

Maggie Mamen

Psychologist
Centrepointe Professional Services
Nepean, Ont.

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.

I have some questions regarding the report by Peter Fried and colleagues on the effect of marijuana use on IQ.¹

The article stated that no significant difference was found in IQ difference scores between former users and non-users (3.5 v. 2.6). This may be because the young adults that fit the definition of former user (smoked marijuana at least once a week in the past and not smoked for the last 3 months) and non-user (never smoked marijuana at least once per week) may actually be quite similar in their marijuana use. For instance, a former user may have smoked marijuana only once a week for a very brief time in the past, while a non-user may have smoked marijuana once every 2 weeks but for a very long time. Can the authors provide more details of marijuana use among the individuals in the former user and non-user categories?

In addition, no significant difference in IQ difference scores was reported between former heavy users (at least 5 joints per week) and non-users. Because the sample size of former users ($n = 9$) was already small, and the number of former heavy users would be even lower than this, the lack of significance may be due simply to a lack of statistical power. Can the authors provide more details on the number of former heavy users and their IQ difference scores?

Paul J. Yong

MD/PhD and Experimental Medicine
Programs
University of British Columbia
Vancouver, BC

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.

Peter Fried and colleagues¹ found that heavy current use of marijuana decreases IQ scores by approximately 5 units in young adults over their adolescent years, compared to light or non-users. Study participants who were heavy users as recently as 3 months prior to the study had no decrease in their IQ scores, suggesting that the effects on IQ are reversible once use is discontinued. The authors suggest that a decrease of 5 units is important because it would increase the percentage of people with an IQ below the cut-off points for intervention and special education — below 77.5 from 6.7% to 11.0%, and below 70 from 2.3% to 5.5%. A similar decline would occur among those with IQs above 122.5 and 130.

It would be interesting to see the results of such an analysis using the authors' data. Was there an increase in the proportion of people below 77.5? Because of its effects on motivation, it is possible that marijuana use affected the IQ scores of participants who scored high initially but not the IQ score of participants who scored low initially. Another way to address this question would be to include the initial IQ score as an independent variable. This might also explain the lack of an effect on participants who were smoking an average of 37 joints/week but had stopped at least 3 months previously.

Ian Shrier

President, Canadian Academy of Sport
Medicine
Centre for Clinical Epidemiology and
Community Studies
The Sir Mortimer B. Davis-Jewish
General Hospital
Montreal, Que.

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.