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EDITORIAL

Challenges in minimizing the adverse effects of cannabis use after legalization

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Over the past 20 years epidemiological studies have left us better informed about the adverse effects of regular cannabis use in young adulthood on mental health and psychosocial outcomes [1]. The Christchurch Health and Development Study (CHDS) of David Fergusson and colleagues has made an especially valuable contribution to this literature, as indicated by the summary of its key findings on the mental health and psychosocial outcomes of cannabis use in the current issue.

The CHDS followed the life course of a birth cohort of 1000 New Zealanders, 80 % of whom had used cannabis by their mid-20s. Nearly a third used cannabis regularly enough, and for long enough, to enable assessment of associations between common adverse psychosocial and mental health outcomes and regular cannabis use. The study also collected detailed information on the personal and social situations of the cohort that enabled the researchers to assess whether the associations they observed between daily cannabis use and adverse outcomes could be explained by pre-existing differences between those who had and had not used cannabis regularly.

This study has consistently found associations between daily cannabis use and poor mental health and psychosocial outcomes. Daily cannabis users had poorer educational attainment in adolescence and poorer employment outcomes in young adulthood, were more likely to use other illicit drugs, and were more likely to report more symptoms of psychosis, depression and suicide. Many of these risks increased with the intensity of cannabis use, and these associations persisted after statistical adjustment for plausible confounding factors. Many of these results have been replicated in the Dunedin birth cohort (e.g. [2]), and in longitudinal studies in other countries such as Australia (e.g. [3]), Germany [4] and the Netherlands [5].

Fergusson and colleagues show that the adverse health effects of cannabis are most concentrated among daily users (nearly 20 % of those who ever used the drug). This pattern was most common among young people who began using cannabis in their mid-teens and continued to use daily throughout young adulthood. Not all cannabis users experienced harm: many adolescent users did not use cannabis regularly enough or for long enough to do so; and a substantial proportion of adult cannabis users, the majority of whom reported using cannabis less than daily, did not report any harms related to their cannabis use.

The cannabis policy debate has been presented in many countries as a forced choice between two packages of belief: (1) that cannabis use does not harm users, and so it should be legalized to avoid users acquiring criminal records; and (2) that cannabis use can harm some users, and so we should continue to prohibit its use [1]. This framing has often hindered a fair appraisal of the adverse health effects of cannabis.

Evidence on the harms of cannabis use cannot decide cannabis policy [6]. The policy choice will depend upon societal beliefs about the priority that should be given to competing social values, such as, preserving individual freedom and protecting human health and well-being. It will also depend on political views on the extent to which the state should use criminal law to prevent adults from

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making choices that may harm them. There are major differences of opinion about these issues in liberal democracies.

Debates over cannabis policies in democratic societies are ideally resolved by a deliberative political process that negotiates an acceptable policy compromise. The most popular compromise in many developed societies has been to retain the statutory prohibition on cannabis use while rarely imposing criminal penalties for possession and use in practice [7]. Until recently, the most radical policy was that of the Netherlands, which decriminalized personal possession and use of cannabis in the 1970s and tolerated small-scale sales of cannabis in coffee shops from the mid-1980s [7].

Fergusson et al. propose that governments should make more use of policy experiments to decide upon a suitable cannabis policy. They suggest that we experiment with more liberal cannabis policies, monitor their effects on rates of cannabis use and cannabis-related harm, and adjust our policies in the light of these findings. This approach has much to recommend it but it has not been embraced by any country.

Instead, more radical policy changes have been produced in the past 3 years in the USA via popular plebiscite. Alaska, Colorado, Oregon, and Washington State passed citizen-initiated referenda that legalized recreational cannabis use by adults over 21 years. Other US states are considering similar changes. Policy evaluation has been largely an afterthought.

Colorado and Washington State have hastily implemented a legal regime based on a modified form of the system that regulates, or fails to regulate, alcohol use in these states. Our experience with alcohol policy suggests that increasing access and reducing price are likely to increase the prevalence of regular cannabis use. Given this, what can US states that have legalized recreational cannabis use do to minimize the harms of cannabis use documented by Fergusson and colleagues?

Governments clearly should discourage adolescent initiation of cannabis use and delay the transition to regular use. Colorado and Washington State have set the minimum legal age of cannabis purchase at 21 years in an attempt to do so. Nonetheless, it will be difficult to prevent adolescents from accessing cannabis after legalization, for the same reasons that hamper attempts to restrict underage access to alcohol and tobacco.

Ideally government policy should discourage the daily use of the more potent cannabis products that have become available in the past several decades. In principle, this could be done by imposing taxes on cannabis products in proportion to their THC content, along the lines of a volumetric alcohol tax [8]. But Colorado and Washington State have not adopted this approach [8]. Instead, both states have decided to tax cannabis on the basis of weight, unwittingly creating an incentive to increase its potency.

Any immediate effects of legalization on adolescent uptake and use may be modest [9]. It will take time for a legal industry to scale up to meet the demand from existing adult users and these States have also initially restricted the number of legal sellers to make it easier to regulate an emerging industry. One would expect that over the next 5–10 years a large legal cannabis industry will emerge. The major regulatory challenge then will be to prevent a legal cannabis industry from doing what for-profit industries do, namely, promoting the use of their products. The industry can achieve this most immediately by increasing the amount of cannabis used by regular users and by increasing the number of current users who use regularly. In the longer term, they will need to recruit new users to replace those who discontinue use.

There will be other regulatory challenges. One will be to discourage the cannabis industry from following the examples of tobacco and alcohol industries in using celebrities to promote cannabis use and paying researchers to manufacture doubts about the evidence that regular cannabis can adversely affect some users. Another will be to avoid the amnesia about the adverse effects of alcohol use that occurred after the Repeal of National Prohibition in the US. A deflationary reaction to "temperance propaganda" led to a loss of cultural memory about the adverse health effects of heavy drinking [10]. One hopes that the research of Fergusson and his colleagues will make it more difficult for this to happen after the legalization of cannabis use.

Conflict of interest I have no conflicts of interest to declare.

References

1. Hall WD (2015) What has research over the past two decades revealed about the adverse health effects of recreational cannabis use? Addiction 110:19–35. doi:10.1111/add.12703
2. Meier M, Caspi A, Ambler A, Harrington H, Houts R, Keefe R, McDonald K, Ward A, Poulton R, Moffitt T (2012) Persistent cannabis users show neuropsychological decline from childhood to midlife. Proc Natl Acad Sci USA 109:E2657–E2664. doi:10.1073/pnas.1206820109
3. Patton GC, Coffey C, Carlin JB, Degenhardt L, Lynskey MT, Hall WD (2002) Cannabis use and mental health in young people: cohort study. BMJ 325:1195–1198. doi:10.1136/bmj.325.7374.1195
4. Wittchen HU, Frohlich C, Behrendt S, Gunther A, Rehm J, Zimmermann P, Lieb R, Perkonigg A (2007) Cannabis use and cannabis use disorders and their relationship to mental disorders: a 10-year prospective-longitudinal community study in adolescents. Drug Alcohol Depend 88(Suppl 1):S60–S70. doi:10.1016/j.drugalcdep.2006.12.013
5. van Os J, Bak M, Hanssen M, Bijl RV, de Graaf R, Verdoux H (2002) Cannabis use and psychosis: a longitudinal population-based study. Am J Epidemiol 156:319–327. doi:10.1093/aje/kwf043
6. Hall WD, Pacula RL (2010) Cannabis use and dependence: public health and public policy. Cambridge University Press, Cambridge [**Reissue of first edition (2003)**]

7. Room R, Fischer B, Hall WD, Lenton S, Reuter P (2010) Cannabis policy: moving beyond stalemate. Oxford University Press, Oxford
8. Caulkins J, Kilmer B, Kleiman M, MacCoun R, Midgette G, Oglesby P, Pacula R, Reuter P (2015) Considering marijuana legalization: insights for Vermont and other jurisdictions. http://www.rand.org/pubs/research_reports/RR864.html. Accessed 10 April 2015
9. Hall WD, Weier M (2015) Assessing the public health impacts of legalising recreational cannabis use in the USA. Clin Pharmacol Ther. doi:10.1002/cpt.110
10. Katcher BS (1993) The post-repeal eclipse in knowledge about the harmful effects of alcohol. Addiction 88:729–744