ncpic e-zine
national cannabis prevention and information centre
june 2008

contents

what's new in cannabis?

cannabis and mental health: put into context

The Australian Government Department of Health and Ageing has just released the report *Cannabis and Mental Health: Put into Context*, as part of the National Drug Strategy Monograph Series.

The report found that the association between cannabis use and later experience of psychosis (either symptoms or disorders) appears to be stronger with increasing quantity and frequency of use, and early initiation of use. Young people, in particular, need to be aware of this association.

The report is available to download from the Department's website at www.health.gov.au.

director's report

Jan Copeland (PhD)
(Professor/Director, NCPIC)

In order to maintain our relevance and credibility in the field it is important for NCPIC to continue to develop new, effective intervention approaches to the management of cannabis-related problems in a variety of settings. A number of consortium partners are working on major projects which we will tell you more about as they progress. We are also developing collaborations with major partners such as the Brain and Mind Research Institute and their associated *headspace* sites.

Our interventions development work has initially focused on providing clinicians with materials for the delivery of evidence-based brief interventions. The Adolescent Cannabis Check-up (ACCU), which has been the subject of two treatment studies, has been developed into a set of materials, including a detailed evaluation manual for clinicians in the field. This intervention for young people is being disseminated directly to interested organisations via the NCPIC training arm. The ACCU is being adapted and further tested by a range of organisations, including as part of a newly developed criminal justice diversion scheme for young people in Western Australia. This work has also generated interest internationally with the Trimbos Institute in the Netherlands, and psychiatrists in Spain working on proposals to implement adaptations of the ACCU and related instruments with their respective adolescent populations.

The Intervention Development Manager, Dr Greg Martin, also intends to use parts of the check-up model to inform the development of a web-based intervention that is shortly to begin at NCPIC. Greg has a strong interest in, and a long association with, brief interventions, having worked in the substance use field for more than 14 years in a variety of clinical, research and policy roles. He has written a number of intervention manuals and guidelines, including guidelines for recognising, assessing and treating alcohol and cannabis abuse in primary care. He has also worked as the principal clinician in a series of brief intervention studies and has published in this area.

One of our major projects involves the development of evidence-based clinical guidelines for the treatment of cannabis use disorders, which is being run by Amie Frewen. An expert consensus group was convened, using a Ketill Bruun model, to evaluate the literature and determine the content areas and specific recommendations to be included in guidelines. The final guideline document is intended as a practical and useful resource for clinicians in the field. Following further consultation, consolidation and write-up, the guidelines are expected to be made available early next year.

A further project examining the barriers and facilitators to entry to treatment for cannabis use disorders is also well advanced. Project Officer Peter Gates is close to finalising data collection from 200 regular cannabis users, both in and out of treatment. An online survey has yielded more than 100 additional responses. Data analysis has begun and a report on the findings, including recommendations on how to minimise barriers, and facilitate entry to cannabis treatment will be produced within the next three to four months. Preliminary findings suggest strong support for improving public awareness of services, and the provision of specialist cannabis services.

The second half of the year is set to be very busy, with work on the development of the online intervention, and further dissemination of the Centre's brief intervention materials. If you would like any further information on NCPIC's program of intervention development, contact Dr Greg Martin on 9385-0260 or g.martin@unsw.edu.au

research publications

Relevant publications examining issues to do with cannabis that have been published in the last month include the following:

Agrawal, A., Pergadia, M.L. & Lynskey, M.T. (2008). Is there evidence for symptoms of cannabis withdrawal in the national epidemiologic survey of alcohol and related conditions? *American Journal on the Addictions 17*, 199-208.

Balayssac, D, Zangarelli, A, & Authier, N. (2008). Association of cannabis smoking and periodontal disease. *Journal of the American Medical Association 299*, 2273; author reply 2273-2274.

Cohen, M., Solowij, N. & Carr, V. (2008). Cannabis, cannabinoids and schizophrenia: Integration of the evidence. *Australian and New Zealand Journal of Psychiatry 42*, 357-368.

Deutsch, S.I., Rosse, R.B., Connor, J.M., Burket, J.A., Murphy, M.E., & Fox, F.J. (2008). Current status of cannabis treatment of multiple sclerosis with an illustrative case presentation of a patient with MS, complex vocal tics, paroxysmal dystonia, and marijuana dependence treated with dronabinol. *CNS Spectrums 13*, 393-403.

Duncan, A.E., Sartor, C.E., Scherrer, J.F., Grant, J.D., Heath, A.C., Nelson, E.C., Jacob, T., & Keenan Bucholz, K. (2008). The association between cannabis abuse and dependence and childhood physical and sexual abuse: Evidence from an offspring of twins design. *Addiction 103*, 990-997.

Dyer, O. (2008). Government tightens rules on cannabis despite recommendation not to do so. *British Medical Journal 17*, 1095.

Fergusson, D.M. & Boden, J.M. (2008). Cannabis use and later life outcomes. *Addiction 103*, 969-976.

Lee, K.S., Clough, A.R., Jaragba, M.J., Conigrave, K.M., & Patton, G.C. (2008). Heavy cannabis use and depressive symptoms in three Aboriginal communities in Arnhem Land, Northern Territory. *Medical Journal of Australia 19*, 188.

Leweke, F.M. & Koethe, D. (2008). Cannabis and psychiatric disorders: It is not only addiction. *Addiction Biology 13*, 264-275.

Pertwee, R.G. (2008). Ligands that target cannabinoid receptors in the brain: From THC to anandamide and beyond. *Addiction Biology 13*, 147-159.

Schneider, M. (2008). Puberty as a highly vulnerable developmental period for the consequences of cannabis exposure. *Addiction Biology 13*, 253-263.

Van Beurden, E.K., Zask, A., Passey, M., & Kia, A.M. (2008). The Mull Hypothesis: Is cannabis use contributing to high tobacco use prevalence among young North Coast males? *NSW Public Health Bulletin 19*, 72-74.

Veling, W, Mackenbach, JP, van Os, J, & Hoek, HW. (2008). Cannabis use and genetic predisposition for schizophrenia: A case-control study. *Psychological Medicine 19*, 1-6.

Walden, N. & Earleywine, M. (2008). How high? Quantity as a predictor of cannabis-related problems. *Harm Reduction Journal 29*, 20.

Yücel, M., Solowij, N., Respondek, C., Whittle, S., Fornito, A., Pantelis, C., & Lubman, D.I. (2008). Long-term cannabis use and regional brain abnormalities. *Archives of General Psychiatry 65*, 1-8.

commentary on research

long-term cannabis use and regional brain abnormalities

A/Prof Dan Lubman,
ORYGEN Research Centre, University of Melbourne

While long-term cannabis exposure induces neurotoxic brain changes in experimental animals, limited work has been conducted investigating the impact of chronic use on human brain function. Recent imaging studies have provided conflicting results, although such research has typically involved individuals with only moderate levels of cannabis use (i.e., ‹2 joints per day), who also use other substances and may have comorbid mental health issues. In the latest issue of *Archives of General Psychiatry*[1], a team of researchers from the University of Melbourne and the University of Wollongong examined whether long-term and heavy cannabis use is associated with gross anatomical abnormalities in two regions of the brain that are particularly rich in cannabinoid receptors – the hippocampus and amygdala. These brain regions are intricately involved in learning and memory processes, and are core components of the limbic (emotional) brain. In this study, 15 long-term (›10 years duration) and heavy (›5 joints per day) cannabis-using males (mean age 40 years; 20 years of regular use) with no history of polydrug abuse or neurological/mental disorder were compared with 16 matched non-using healthy volunteers (mean age 36 years). Cannabis users were found to have bilaterally reduced hippocampal and amygdala volumes, in the order of 12% and 7%, respectively. In addition, left hippocampal volume was inversely associated with cumulative doses of cannabis over the previous 10 years, as well as subthreshold positive psychotic symptoms. While modest use may not lead to significant neurotoxicity, these results corroborate similar findings within the animal literature, and indicate that heavy daily cannabis use over protracted periods exerts harmful effects on brain tissue and mental health. Further prospective, longitudinal research is required to determine the degree and mechanisms of long-term cannabis-related harms, as well as the time-course of neuronal recovery following abstinence.

1 **Yücel, M., Solowij, N., Respondek, C., Whittle, S., Fornito, A., Pantelis, C., & Lubman, D.I. (2008). Long-term cannabis use and regional brain abnormalities.** *Archives of General Psychiatry 65*, 1-8.

media stories this issue

Each issue we will examine some of the cannabis-related stories that have received media attention across the country. The headlines are listed below in bold, with a short summary and/or commentary regarding the content of the news story beneath.

If you are interested in obtaining a copy of a particular story, please contact Paul Dillon at p.dillon@unsw.edu.au

doctors to trial pain relief with cannabis

Sun Herald: May 18, 2008

NSW Health Minister, Reba Meagher, will write to the Federal Health Minster, Nicola Roxon, for permission to import and trial a drug expected to be Sativex, according to this newspaper article. A spokeswoman for Ms Meagher is reported to have told the paper – "While the lemma Government is opposed to the legalization of marijuana, we do support a therapeutic trial of a cannabis-based drug."

The UK company GW Pharmaceuticals, the manufacturer of Sativex, grows cannabis then extracts the cannabinoids CBD and THC. They say that "the formulation is believed to enhance the pain relief of THC while modulating the unwanted psychotropic and other THC-related side effects, such as tachycardia (rapid heartbeat)."

This story received widespread attention around the country, with organisations such as the Australian Medical Association and the Cancer Council NSW both supporting the push for a trial.

communities depressed from ganja abuse

Northern Territory News: May 19, 2008

A paper in the current issue of the *Medical Journal of Australia* studied 106 people in three remote communities in Arnhem Land and found that heavy cannabis use was leading to increased cases of depression in the areas studied. The study found that 61% of men and 58% of women used cannabis at least once a week. Report author, Kylie Lee said there was a clear link between "depressive symptoms" and heavy cannabis use.

dope smokers at high psychosis risk

Herald Sun: May 22, 2008

This article is based on a review of the latest evidence around psychosis and cannabis use. Lead researcher, Dr Martin Cohen, of Hunter New England Mental Health Service is reported as saying that Australia was "number one in the world" for smoking cannabis, and "we know now more than ever before that this bodes badly for our mental health." According to the article cannabis smokers are at 40% greater risk of developing schizophrenia than those who don't use the drug, and smoking cannabis regularly increases the risk by two-fold.

a danger drug like any other

Geelong Advertiser: May 26, 2008

An interesting piece that features an interview with Dr Peter Miller who has just returned from London to accept a fellowship with the National Health and Medical Research Council. When asked to comment about the link between cannabis and schizophrenia, he said that while cannabis use had increased massively since the 1960s, schizophrenia was less common than it was in almost every country. He went on to say that research had shown that people who had a genetic or environmental predisposition to schizophrenia were more likely to develop the condition if they smoked cannabis.

going to pot

New Scientist: June 7, 2008

Significant research findings from the University of Melbourne and the Orygen Research Centre reveal links between long-term, heavy cannabis use and brain size. Results from brain scans of 15 heavy users who had smoked at least five joints a day for over 10 years, showed that on average, their hippocampuses and amygdales were 12% and 7.1% smaller than non-users respectively. The research, published in a recent edition of journal *Archives of General Psychiatry*, points to a reduction in memory capacity and an increase in social withdrawal and paranoia for heavy cannabis users.

NT: Tough new laws for drug trafficking passed in NT

AAP Newswire: June 11, 2008

Changes to drug trafficking laws in the Northern Territory aim to address the harms associated with cannabis use and curb the efforts of traffickers who would prey on remote Indigenous communities. It is now an aggravated trafficking offence to take cannabis into remote Indigenous communities and the maximum penalty has increased from five to nine years in jail. Drug supply is hoped to decrease due to these changes and the resultant lower usage rates will mean more money is available for food and health care. The article writes that NT Attorney-General Chris Burns said there has "been a spike in cannabis use since widespread alcohol bans were introduced across the Northern Territory as part of the Howard government's emergency intervention to combat child sexual abuse."

marijuana potency hits new high

The Age: June 13, 2008

There have been a number of articles suggesting that cannabis potency has dramatically increased over time and subsequently, as has its health risks. Researchers from the University of Mississippi's Potency Monitoring Project analysed THC levels in cannabis samples seized by US law enforcement agencies from 1975 to 2007 and found that average levels have increased to 9.6% in 2007 from 4% in 1983. The White House Office of National Drug Control Policy's Director John Walters stated that "potency has grown steeply over the past decade with serious implications in particular for young people".

cannabis laws gone to pot

Melville Times: June 17, 2008

There has been criticism of Western Australia's state government for lack of action over changes to the Cannabis Control Act 2003. The aim of the 2003 legislation was to divert low-level cannabis offenders to counseling

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services instead of the courts. A report into the legislation last year has suggested ways it can be improved, including a reduction in the quantity of cannabis to which the Cannabis Infringement Notice scheme applies from 30 grams to 15 grams, mandatory cannabis education and an increase in fines for offenders who don't attend education sessions. Western Australia has been found to have among the highest rates of cannabis arrests in the world, while cannabis use in Australia has been steadily declining over the past decade.

teens just said no

Daily Telegraph: June 21, 2008

This article suggests that changing behavior in terms of a marked reduction in cannabis use among teenagers is attributed to the 'just say no' approach of the previous government and the close work between health workers and law enforcers. It also asserts that cannabis is no longer perceived as 'cool' among young people and that there is more awareness and willingness to talk about the long-term health impacts of cannabis use than there has been in the past.

scientists are flushing out the evidence about drug use, from LA to London

The Age: June 24, 2008

A surprising article in The Age has revealed that analysis of a city's sewerage gives great insight into its inhabitants' drug use. Environmental scientists in the US and Europe have found interesting patterns of drug use involving cocaine, methamphetamine, heroin and cannabis through this method. Unlike surveys, sewerage can't lie and it is seen as a more reliable and accurate way of gathering data about drug use which could be used to inform policy and map trends. Cannabis was one of the drugs found to be widely used in all cities studied, with drugs such as ecstasy the least prevalent. Some concern about people's privacy being impinged upon was raised as the testing can be quite accurate and narrowed down to single streets.

medicinal cannabis is all about the dose

Border Mail: June 27, 2008

Research by the University of California suggests that smoking a moderate amount of cannabis may relieve pain but smoking high doses may increase pain. It was found that the medium and high doses only, had effects on the level of pain experienced, while the low doses registered no effect. Despite the findings, researchers stressed that no conclusions on the efficacy of smoked cannabis to relieve pain could be drawn and that further research was necessary.

little risk in short-term medicinal cannabis use

Australian Doctor: June 27, 2008

Research published in the *Canadian Medical Association Journal*, suggests that short-term use of cannabis for medicinal purposes holds little risk for patients suffering nausea, vomiting or lack of appetite in conditions such as AIDS or terminal cancer, as well as chemotherapy patients. Dizziness in 15.5% of 1932 research participants who were exposed to cannabinoids was one unwanted effect that was noted. It was emphasised though, that some of the consequences of medicinal cannabis use were the risk of developing dependence, exacerbation of cardiovascular disease, precipitation of psychotic disorders and cancers. Long-term use was not supported as the effects are largely unknown.

cannabis clinic packages a 'mixed' bag for addicts

Northern Star: June 28, 2008

Cognitive behavioural therapy is being used in a new cannabis clinic opened by the North Coast Area Health Service. People who recognise they have a cannabis dependence and want to quit or reduce their usage are targeted, and results from five similar clinics in NSW have shown a 50% success rate in helping people quit. Clients are given access to specialist psychiatrists for one hour a week for up to eight weeks. The therapy focuses on teaching strategies to help change clients' thinking about their interactions with the drug and the world, ways to fight cravings and how to avoid risky situations such as being with friends who are smoking cannabis.

marijuana in spotlight

Sun Herald: June 29, 2008

Concerns were raised in this article that teenagers and adults are not properly informed about the health risks associated with cannabis use, including the large amount of evidence linking it to memory loss, schizophrenia and psychosis. It describes the importance of a recently released Australian Medical Association (AMA) brochure for GPs to distribute to patients about the short and long-term effects of cannabis use. The fact that doctors have a prime opportunity to educate their patients about the accurate implications of cannabis use was emphasized by AMA President Rosanna Capolingua.

ordering NCPIC resources

NCPIC has developed a wide range of resources that are now available at no cost. These include the popular 'What's the deal?' series, as well as a number of clinical resources that are available to individuals and organisations that have completed the clinical training course. The resources can either be downloaded from the NCPIC website or, alternatively, a free allocation of booklets can be sent to your agency or organisation. To receive your free allocation simply go the NCPIC website (http://ncpic.org.au/workforce/cannabisinfo/order/) and complete the electronic order form.

cannabis treatment: what do we know?

Compared to some other drugs, there are fewer specific treatments available for cannabis-related problems. We are learning more about this area, and there are a range of useful treatments that are now emerging. Most of the treatment options that are currently available involve counselling, although a number of pharmacological treatment options are currently being investigated.

About 20-40% of people are abstinent while in treatment. Unfortunately, as with other drugs, many people start using cannabis again after they have completed treatment. Despite this, treatment improves their lives by helping them reduce the amount of cannabis they use and associated health and social problems.

Research on psychological interventions for cannabis use has included a range of counselling approaches, particularly those based on cognitive behavioural therapy (CBT) and motivational interviewing. Contingency management (CM) is also another intervention that has been examined in some studies.

CBT includes teaching and practice of behavioural and cognitive skills to deal with risk factors (i.e., drug refusal, coping with craving, managing mood, avoiding high risk for use environments, finding alternative activities, etc). It essentially focuses on how the person feels about and responds to thoughts and experiences and ways of tackling negative thoughts.

Motivational interviewing has recently been developed for cannabis problems. Motivational interviewing does not confront individuals about the need to change, but works to encourage and build motivation to change. Many young people have managed to significantly reduce cannabis use and related problems. Among young people with complex psycho-social and substance use related problems, intensive family therapy-based interventions show particular promise.

Contingency management involves the systematic use of positive and negative consequences (reward and punishment) following a target behavior. In the case of treatments for cannabis dependence, two types of CM have been tested to date, i.e., abstinence-based and attendance-based vouchers. The abstinence-based voucher program provides incentives dependent on cannabis abstinence based on the results of a once or twice-weekly drug-testing program. Vouchers have a monetary value that escalates with each consecutive negative drug test.

NCPIC will be publishing evidence-based guidelines for the management of cannabis-related problems in early 2009.

cannabis and tobacco: what do we know?

There are many studies that report on the harmful health effects of smoking tobacco, such as cancer, respiratory disease (bronchitis, emphysema) and heart disease. While there are few studies conducted on the effects of cannabis smoke, there is growing evidence that there are similar major health concerns for those who smoke cannabis.

Tobacco and cannabis smoke both contain harmful chemicals which are absorbed when inhaled. This exposes the smoker's lungs to greater risks of developing major respiratory diseases and/or cancer.

International reports have found specific links between smoking both tobacco and cannabis, such as:

- many people who try cannabis have previously smoked tobacco
- many current cannabis smokers are also current cigarette smokers
- early onset of tobacco use may act as a 'gateway' to future cannabis use
- nicotine dependence can develop if tobacco is used in combination with cannabis
- smoking both cannabis and tobacco increases health risks rather than smoking each alone

Mixing tobacco with cannabis is polydrug use. Nicotine is an addictive drug and the combination of these two drugs increases the exposure to tar and other carcinogens, causing greater risks to the lungs, respiratory organs as well as the cardiovascular system. Cannabis smokers are also at risk of developing a nicotine dependence if they mix tobacco with their cannabis.

Compared to tobacco cigarette smokers, people who smoke cannabis typically:

- inhale more smoke (two-thirds larger puff volume)
- inhale the smoke deeper into the lungs (one-third greater depth of inhalation)
- hold the smoke in the lungs for longer time periods (up to four times longer)

This results in the lungs being exposed to:

- greater amounts of carbon monoxide and other smoke irritants
- greater retention of tar in the respiratory tract

Both carbon monoxide and tar increase the risks of a range of health problems including respiratory tract infections, bronchitis and lung cancer.

ncpic contact details

NCPIC is a consortium led by the National Drug and Alcohol Research Centre and is an Australian Government Department of Health and Ageing initiative

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