

Marijuana use in adolescence

Roger S Tonkin MD FRCPC

The prevalence of marijuana use by adolescents has fluctuated in recent decades, but overall, has increased significantly. In a study of adolescent health status and risk behaviours among students in grades 7 to 12 in British Columbia, it was found that the patterns of marijuana use had changed, especially among early adolescents. An earlier age of onset of use and an increased frequency of use were noted. The present paper examines the clinical and psychosocial implications of early age of onset of marijuana use, and reports important differences in risky behaviours between users and nonusers. The prevailing attitude that marijuana is a 'safe, recreational' drug is challenged.

In a recent survey of almost 26,000 students in grades 7 to 12 in British Columbia schools, several disturbing trends emerged (1). These trends prompted the present clinical note and its challenge to our contemporary thinking about marijuana. Some of the results of the survey are presented in this note and others may be accessed on the Internet (www.mcs.bc.ca). These results indicate the increased frequency of use and earlier age of first use of marijuana among adolescents in British Columbia (Table 1). Similar results have been reported in other provinces and in the United States (2-4).

Since it became popularized in the late 1960s, marijuana use has been socially, if not legally, sanctioned. Contemporary adult culture accepts the notion that marijuana is a 'safe, recreational' drug. As marijuana became more freely available to adults, its use by adolescents soon began to increase. This trend has been monitored over the past three decades, generating numerous scientific papers from many different cultures, and each reporting very similar results. This brief note is intended to alarm people about a particular aspect of current marijuana use: its early and more frequent use in early adolescence. This note seeks to challenge the notion that marijuana is a benign product or that it offers a 'safe, recreational' activity for adolescents to engage in.

The literature emphasizes the social aspects of cannabis use and reflects the debate about approaches to the drug's use prevention and harm reduction. Within that context, we know a lot about trends in marijuana use by adolescents. The scientific literature on marijuana's health and social effects in adolescence is less developed. We know that marijuana is usually inhaled and its active component (tetrahydrocannabinol [THC]) is delivered to the young person's lungs in a smoke suspension. This smoke is unfiltered, often contains contaminants and may also carry other psychoactive products. Compared with the common cigarette, it is no more benign and, if modern mythology is to be believed, the potency (THC content) of modern marijuana is much higher than that when it first burst upon the scene.

It is commonly argued that marijuana is less of an evil than alcohol or tobacco. There is considerable research on the effects of alcohol and tobacco, including their impact on adolescents. A few short term studies have indicated that marijuana ingestion may impair

certain cognitive functions and aspects of physical activities such as driving a vehicle (5,6). There is little research on the impact of marijuana use during pregnancy and lactation, but negative behavioural effects have been noted (7,8). While there are no known effects comparable with fetal alcohol syndrome or fetal alcohol effects, there is some evidence that suggests the existence of subtle, long term behavioural impacts on the fetus (9,10). More long term studies on respiratory function and the prevalence of chronic lung disease, cancers and cognitive capacity among chronic marijuana users are needed, but the available evidence shows that these negative effects are present (11-13). In the face of this lack of sound, adolescent-specific scientific knowledge and given that this is the era of evidence-based medicine, the acceptance of marijuana as being 'safe' is curious.

Clinicians who work with adolescents are well aware that, for at least some youth, the regular use of marijuana is not benign. These clinical impressions are supported by the self-reports in school student surveys. Lack of motivation, declining academic performance, chronic absenteeism and leaving school early are well-recognized clinical presentations. Other side effects among chronic users of marijuana include depression, multiple substance abuse, dietary dysfunction and family conflict (14). Many chronic users of marijuana become involved in the street scene and its related sex trade practices. Indeed, marijuana, along with alcohol and tobacco, has become a gateway drug. Its use is associated with sexually transmitted diseases, unsafe sex practices and other risky behaviours in adolescents (Tables 2,3). Furthermore, there is growing concern for the physical and psychological dependency-promoting characteristics and the addictive potential of chronic marijuana use among adolescents.

More recently, the medical use of marijuana products has begun to be legalized and federal support has been provided for their production. The primary focus of this initiative is on promoting safe, regulated use by adults with demonstrable medical needs. This federal action has renewed interest in the clinical effects and toxicity of marijuana. Perhaps this new interest will stimulate pharmacologists and other clinical researchers to take a more critical look at the sometimes contradictory evidence on the safety of this "naturally growing herbal product with known health benefits" (15).

The drug culture of a community may have destructive effects on its social institutions. The illegal marketing of marijuana promotes weapon carrying, violence, minor crime and vandalism, and sexual exploitation. The marketing of marijuana to adolescents significantly impacts the juvenile justice system and child welfare resources. The expansion of the underground marijuana cultivation and distribution system has shifted its nature from the benign peacenik movement of the hippie days to a negative criminal force that affects our schools and families. Many of our adolescents have become the willing targets of these negative forces.

It is evident that the marijuana use profile has evolved over the past three decades. As far as early to mid-adolescents are concerned, that evolution has had significant negative consequences. What was once considered to be benign, or safe for use, by young adults can no longer be dismissed as a recreational activity without implications for the nation's adolescents.

What then is the role of the clinician and of the Canadian Paediatric Society (CPS)? To begin, we can talk with our adolescent patients and listen to their perspective. Beyond that we have a clinical role to play in identifying, suitably assessing and referring adolescents who are at risk because of their risky substance use. Adolescents who experience an early onset of puberty; who are young and already engaging in risky behaviours or who have special vulnerabilities (eg, have chronic conditions); and who are in conflict with family, school, police or the community are candidates for a confidential substance use history that can be obtained by a caring physician. To have an impact on individual patients, the physician may benefit by partnering with community agencies, school counselors and community workers who are familiar with substance use patterns in the community. As leaders in our communities, we can promote dialogue on the issues and help to focus the debate on the shifting paradigm, the risk it poses in early adolescence and the question of what to do about it in specific situations such as during teen pregnancy (16).

The CPS, by commissioning a working paper on the implications of the existing adolescent health surveys such as the one in British Columbia and by using the vehicle of its broad committee structure, could begin to direct a national discussion on the needed action plan. To have an impact, the CPS needs to partner with government and non government agencies, as well as university research and training establishments.

As has often been the case in the past, our society and local communities have focused on a single behavioural problem among adolescents (eg, tobacco use or drinking and driving), rather than the broader context and correlates of risky behaviour in adolescence. It would seem that during the past several decades the emphasis on tobacco or alcohol use has enabled the emergence of marijuana as a safe, socially accepted substitute. The available evidence does not support such a conclusion. Marijuana is not a safe product. Early adolescents are not protected from its negative outcomes. We cannot afford to continue to ignore the important shifts in marijuana use patterns among Canadian adolescents.

References

1. Alfa EM, Ivis FJ, Smart RG, et al. Ontario Student Drug Use Survey: 1977-1995. Toronto: Addiction Research Foundation, 1995.
2. Brookoff D, Cook CS, Williams C, Mann CS. Testing reckless drivers for cocaine and marijuana. *N Engl J Med* 1994;331:518-22.
3. Donald PJ. Marijuana smoking: Possible cause of head and neck carcinoma in young patients. *Otolaryngol Head Neck Surg* 1986;94:517-21.
4. Fried PA. The Ottawa Prenatal Prospective Study (OPPS). Methodological issues and findings: It's easy to throw the baby out with the bath water. *Life Sci* 1995;56:2159-68.
5. Gold MS. Marijuana. New York: Plenum Medical Book Co, 1989:69-71.
6. McCreary Centre Society. Healthy Connections: Listening to BC Youth. Burnaby: The McCreary Centre Society, 1999.

7. National Institute on Drug Abuse. Infobox 13551: Marijuana. November 1999. <<http://www.drugabuse.gov/infobox/marijuana.html>> (Version current at July 26, 2001).
8. O'Brien R. Going to pot. Pharm Pract 2001;17:38-45.
9. Poulin C, Elliot D. Alcohol, tobacco and cannabis use among Nova Scotia adolescents. CMAJ 1997;156:1387-93.
10. Robison LL, Buckley JD, Daigle AE, et al. Maternal drug use and risk of childhood nonlymphoblastic leukemia among offspring. An epidemiologic investigation implicating marijuana (a report from the Childrens Cancer Study Group). Cancer 1989;63:1904-11.
11. Robson P. Cannabis. Arch Dis Child 1997;77:164-6.
12. Schwartz RH, Gruenewald PJ, Klitzner M, Fedio P Short-term memory impairment in cannabis-dependent adolescents. Am J Dis Child 1989;143:1214-9.
13. Shalala DE. Say no to legalization of marijuana. The Wall Street Journal, August, 1995.
14. Tashkin DP Is frequent marijuana smoking harmful to health? West J Med 1993;158:635-7.
15. Tonkin RS. Adolescent Health Survey II Fact Sheet: Marijuana Use Among BC Youth. Burnaby: McCreary Centre Society, 2001.
16. Zuckerman B, Frank DA, Hingson R, et al. Effects of maternal marijuana and cocaine use on fetal growth. N Engl J Med 1989;320:762-8.

Reproduced from: Paediatrics&Child Health, February 2002, Vol.7 No.2, p.73-75.

Age (years)	1992 (%)	1998 (%)
13	10	20
15	27	48
17	39	58

Educational behavior	Nonuser (%)	Current user (%)
Skipped school in past month	17	63
Dislike/hate school	20	43
Plan to attend postsecondary school	78	64

Risk behavior	Nonuser (%)	Current user (%)
Sexual health		
Ever had sexual intercourse	7	57
Had sexual intercourse before age 14 years	2	19
Violence		
Involved in one or more physical fights in the past year	22	47
Carried a weapon to school in the past month	5	19
Driving		
Ever driven after using alcohol or drugs (of licensed drivers)	9	71
Rode with drinking driver in the past month	12	50